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NATIONALIZATION OF RAILWAYS IN JAPAN

BY

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PREFACE

THIS work was commenced in a German university as a doctoral dissertation. When it was almost completed the present world-war broke out, making the fulfilment of my hopes for the time being impossible. It is, however, an unexpected pleasure to me that the present war has brought this dissertation from Germany, where most of the railway systems are already nationalized and the practical need of any further discussion is therefore very slight, to the United States, where the question of governmental acquisition of the means of communication is now frequently discussed and where as a consequence this essay may be of use in affording some data to the public.

A few words may be added as to the purpose of this dissertation and the manner in which it has been carried out. Although most economic problems can in general not be considered apart from other discussions, the problem of railway nationalization is a particularly difficult one in that it ought to be discussed with equal care from the point of view of state policy and national defence, as well as from that of economics. Since it is, however, impossible for us to treat this question from all these standpoints, we shall limit ourselves to a discussion from the side of economics.

Although political economy cannot be easily defined, it may be said that the chief function of the economist is the discussion of how to increase the wealth of nations, or more exactly, production as well as productivity. The standard of right and wrong, if any, in political economy is to be based on a consideration of the increase or decrease of wealth from the point of view of the whole community.

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Every discussion of sociology, politics and ethics, as well as a study of the distribution and consumption of wealth, should rest upon this economic basis.

This conception may be criticized in that it starts from the whole. But it must be borne in mind that the whole cannot exist without the individual. The individual may be called the steam and the whole the steam-engine; while according to Aristotle the former may be said to be the *matter* and the latter the *form*.

The relation of the individual to the whole must be thoroughly grasped, because it leads to two important economic principles—socialistic and individualistic.

In my opinion, the socialist or state-socialist, who insists upon the governmental acquisition of the means of production in whole or in part, ignores the egoism, which is the main source of our acts; whereas the individualist, who opposes governmental intervention in any case, often disregards the public interest.

In dealing with the problem of railway nationalization, we must attempt to ascertain the influence which railroads have exerted upon the wealth of nations as wholes. With this relation as a basis, two sides of railway enterprise—the financial and the social—are to be studied. In both cases there is a difference between the principles of private and of public economy. The question as to which of these principles is or should be applied in state-railroad administration is the central point of the whole discussion; it gives rise to the problem of monopoly, of taxation, and of economic development in general.

It is my conviction that at every stage in the development of a nation's economic life each of these two economic principles — the individualistic and the state-socialistic— should be applied, but in all cases with moderation.

What, then, are the economic conditions in Japan? In

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my opinion, there are two great intellectual and physical obstacles in Japan which have hitherto hindered the development of its economic life. They are the lack of the individualistic idea (or independent spirit) of the people and the lack of capital. The Japanese people, who were for a long time under the idealistic-stoic influence of Buddhism and Confucianism, as well as subjected to the despotic pressure of the feudal system, have a very weak, independent emotion, so that the economic life of the nation has naturally been depressed to a low level. Under such conditions the state-socialistic idea spreads rapidly among the people. This is shown by the fact that most of the great industries in Japan have been started or aided by the government. The reader of this dissertation will realize that the nationalization of the railways in Japan was effected under such political and economic circumstances. Our effort must, therefore, be to remedy these defects. We can see that conditions in Japan—especially in the two points mentioned —contrast strongly with those in the United States.

In this dissertation no reference will be made to Formosa, Saghalien, Korea or Manchuria, as this would necessitate a discussion of colonial railways. In connection with the subject of railway nationalization, the problem of the replacement of the present narrow gauge by the world's normal gauge, as well as that of the improvement of administrative system, ought properly to be discussed. Both of these points will, however, be omitted owing to the difficulty experienced by the writer in securing adequate material.

The somewhat detailed account of the historical development of railways and railway rates, which, so far as I know, is not to be found in any non-Japanese work, is intended to furnish new material to the foreigner.

I wish to add that almost all the material found in this dissertation was gathered prior to August, 1914.

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Europeans and Americans will realize how difficult it is to procure such material in Japan, owing to its scarcity—and especially is this true in the case of one who is studying in a foreign country. Moreover, the fact that the materials thus collected, especially of a statistical nature, are not in good shape, and are sometimes very confused, presents additional difficulties to the student.

Finally, I desire to acknowledge my indebtedness to the members of the economic faculty of the University of Halle, Germany, for their guidance; to Prof. Brodnitz, under whose leadership I began this thesis, and to Prof. Conrad, Prof. Waentig, formerly professor at the Imperial University of Tokyo, and Dr. Grünfeld, formerly adviser of the South Manchurian Railway Company, whose kind advice and corrections well-nigh enabled me to complete the dissertation. Especial thanks are, however, due to Prof. Seligman, of Columbia University, whose friendly aid has made possible the completion and the publication of this dissertation; also to Prof. Mitchell, who has kindly read the proof sheets; and to Miss Louise S. Benjamin and Mr. Paul B. Thomas, who have aided me with the translation of my dissertation from German into English.

For the collection of materials and for special inquiries, I am indebted to ex-Secretary of Communications Baron Goto, Former Director Matsuki, Director Morimoto, Councillor Aoki, Councillor Hirano, Vice-Councillor Hirayama and Clerk Matsuhashi in the Imperial Board of Railways in Tokio, Lawyer Umehara, Dr. Aochi in Tokio, Director Ishizuka in Yokohama and Manager Nakayama. I also owe a well-nigh inexpressible debt of thanks to my dear friend, Ihara, Director of the Industrial Company in Manila, to whose advice and peculiar assistance this study is in large part due.

T. W.

NEW YORK, MARCH, 1915.

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WEIGHTS, MEASURES AND MONEYS, WITH ENGLISH, AMERICAN, FRENCH AND GERMAN EQUIVALENTS.

Japan.	Great Britain.	United States of America.	France.	Germany.
Ri.	2.44030 Miles.	2.44020 Miles.	3.92727 Kilomètres.	3.92727 Kilometer.
Ri (Marine).	1.15152 Miles.	1.15151 Miles.	1.85318 Kilomètre.	1.85318 Kilometer.
Square *Ri.*	5.95505 Square Miles.	5.95501 Square Miles.	15.42347 Kilomètres Carrés.	15.42347 Quadrat-kilometer.
Chō = 10 *Tan* = 3,000 *Tsubo.*	2.45064 Acres.	2.45062 Acres.	99.17355 Ares.	99.17355 Ar.
Tsubo.	3.95369 Square Yards.	3.95367 Square Yards.	3.30579 Centiares.	3.30579 Quadrat-meter.
Koku = 10 *To* = 100 *Shō.*	4.96005 Bushels.	47.65389 Gallons. (Liquid) 5.11962 Bushels. (Dry)	1.80391 Hectolitre.	1.80391 Hektoliter.
" (Capacity of vessel)	$\frac{1}{10}$ of one Ton.	$\frac{1}{10}$ of one Ton.	$\frac{1}{10}$ de Tonne.	$\frac{1}{10}$ Tonne.
Kwan = 1,000 *Momme.*	8.26733 lbs. (Avoir.) 10.04711 lbs. (Troy.)	8.26753 lbs. (Avoir.) 10.04711 lbs. (Troy.)	3.75000 Kilogrammes.	3.75000 Kilogramm.
Kin = 160 *Momme.*	1.32277 lbs. (Avoir.) 1.60724 lbs. (Troy.)	1.32277 lbs. (Avoir.) 1.60754 lbs. (Troy.)	0.60000 Kilogramme.	0.60000 Kilogramm.
Momme.	2.11644 Drams. 2.41131 Dwts.	0.13228 Ounce. (Avoir.) 0.12057 Ounce. (Troy.)	3.75000 Grammes.	3.75000 Gramm.
Yen = 100 *Sen.*	2s. 0d. 582.	0.4984 Dollar.	2.583 Francs.	2.0924 Mark.

The value of *Yen* given in this Annual is as follows:—

Prior to December, 1885 ..... Gold *Yen* (0.4 *Momme* of pure gold).
From January, 1886 to September, 1897 ..... Silver *Yen* (6.7 *Momme* of pure silver).
Subsequent to October, 1897 ..... Gold *Yen* (0.2 *Momme* of pure gold).

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CHAPTER I

Preliminary Survey

1. Survey of the Development of the Economic Life of Modern Japan

If we desire to study the causes and results of the governmental acquisition of railroads in Japan, we must, first of all, have a clear idea of the general development of Japanese economic life. Formerly, when the political power was still in the hands of the feudal lords, Japan was merely an agricultural country. Trade and commerce were of very little importance under the old régime, with its undeveloped methods of commercial intercourse. It is only since the restoration of 1868 that Japan has entered upon an economic life of the European type.

The resulting development may be divided into four epochs. The first runs from the restoration to 1881. It was the time of the first attempts at a new economic life. It was found necessary, first of all, to uplift the Shizokus, whose financial status had been lowered through the collapse of feudalism in the time of the Tokugawas—the Shizokus having had the power in their hands, under the despotic rule of feudalism, until the restoration. Following that, the various branches of business began to develop under the powerful furtherance of the government. In the case of the more important branches of industry, however, it was imperative that they should be carried on with the help of European machinery, for the introduction of which private capital did not suffice.[1] The government installed

[1] For further statements on governmental undertakings at this time see Rathgen, *Japans V. S.*, pp. 376, 377.

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and carried on most of the larger enterprises, such as factories for guns and gunpowder, naval docks, printing establishments, workshops for the railroads, and, finally, the railroads themselves. These government undertakings absorbed a huge amount of capital, and, in general, not only was the cost of running them unrecognized, but there was no mention made of paying interest on the original capital invested.

In the second period, from 1881 to the war with China (1894-95), an attempt was made to put government control of business into better shape. At the time, private enterprises came strongly to the fore, and the larger ones gained more and more control over the smaller through the sale of government enterprises to private interests. It is the time of the beginnings of business on a large scale.

The third period, from the war with China to the Russo-Japanese war (1904-05), was the time of expansion. Countless industrial enterprises, patterned after European forms, sprang up like mushrooms. Although an economic crisis supervened in the years 1899-1900, economic life as a whole underwent a steady upward development.

In the fourth period, from the Russo-Japanese war to the present time, the tendencies of Japanese political life became clearer. Thus, for example, the policies regarding railroads have become unmistakable through the governmental acquisition of 1906, and the trade policies have been clarified through the newly-revised tariff of import duties (Law No. 54 of 1910).

At present the state-socialist-protectionist idea is very powerful in Japan. Whether the protective policy is beneficial to the economic life of a country has not as yet been theoretically decided, but in actual practice opinion seems to lean toward a protective duty. I believe, however, that protectionism is only a means to an end, and that a strict

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adherence to it can only have a harmful influence on economic conditions. How can economic life receive an impetus when there is an under-valuation of the worth of self-reliance? We must not, moreover, forget that the sea, as Alfred Kirchhoff says,[1] is the sole absolutely potent force on earth, and that Japan has, as an island empire, a unique position in the concert of world-powers. This position of Japan must be taken into account in the consideration of the nationalization of the Japanese railroads.

2. THE INFLUENCE OF JAPAN'S PECULIAR GEOGRAPHICAL FORMATION ON RAILWAY-CONSTRUCTION

The grounds for a brief exposition of Japan's geographical situation are to be found not alone in the fact that a consideration of the geography of a country is necessary for understanding any of its economic phenomena, but also in my desire to point out an error which many influential men in Japan have committed when, in justification of Japan's national railway system, they have quoted the favorable results of the German—especially of the Prussian —system. The situation of Japan differs from that of Germany in two essential respects:

(1) Germany is centrally situated among the great cultural and commercial states of Europe, whereas this is not true of Japan.

(2) Japan is an island empire; it is absolutely impossible for her to have intercourse with any other country without a sea voyage. It is different with Germany.[2] There conditions favorable to the management of railroads are at work. The reverse is the case in Japan.

[1] *Cf.* Kirchhoff, *Wirtschaftliche u. geographische Lage Deutschlands*, p. 2.

[2] Compare Gruber—*Deutsches Wirtschaftsleben*, p. 8.

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As the map shows, Japan is an island empire, consisting of the four chief islands, Honshiu, Shikoku, Kiushiu and Hokkaido, in addition to a number of smaller ones. The largest is Honshiu, whose greatest breadth is, however, only about 60 miles, and in whose center there are several mountain-chains. The contour of the land is very mountainous, not only in Honshiu, but also in the other parts of the country. Many of the mountains are volcanic and lead to frequent earthquakes, which are a great affliction to the whole country.[1] The climate is, on the whole, very mild. as it is influenced by warm ocean currents, while abundant rainfall favors the growth of the various cereals. Unfortunately, agriculture is, on the other hand, seriously injured by the frequent river floods. All these geographical peculiarities must naturally have played an important part in the construction of railroads.

(*a*) *Proportionately High Cost of Construction*

If we compare the costs of construction of railroads in various countries, the figures are as follows (see next page):[2]

From the following table it is clear that the cost of railroad construction is, on the whole, much greater in highly civilized countries than in the less civilized. Though the nominal cost of construction of Japanese railroads is the lowest among the seven great powers specified, it is in reality not so low when it is remembered that the general cost of living is about one-third as great in Japan as in Germany. In respect to cost of construction, however, Japan stands next to Sumatra and New South Wales,[3] at the head of the world, exclusive of Europe and the United States.

[1] Further treated in "Japan in the beginning of the twentieth century," pp. 13-39 and *Mitteilungen* D. A. G. II, 1876-80, p. 168.

[2] Arranged according to the *Archiv für Eisenbahnwesen*, 1913, pp. 618-19 and "Meiji Shijuyonendo Tetsudo Tokei Zuhio," 1911-12, pp. 427-437.

[3] According to the *Archiv für Eisenbahnwesen*, 1913, pp. 618-19.

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Name of Country.	Length (km.).	Capital invested.	
		Aggregate amount in mill. dollars.	For 1 km. in dollars.
Germany, entire system, operating year 1911–12 ..	59,992	4,458	74,313
Austria, entire system, calendar year 1910.....	22,642	1,757	77,625
Hungary, entire system, calendar year 1910	20,646	912	44,193
France, main lines, calendar year 1909	40,216	3,724	92,597
England, entire system, calendar year 1908	37,337	6,552	175,501
Russia, entire system (without Finland), calendar year 1908	66,670	3,542	53,140
Italy, states' lines, operating year 1906–07	14,000	1,131	80,804
U. S. A., entire system, 30 June, 1910	396,014	20,169	50,931
Denmark, states' lines, operating year 1910–11 ...	1,960	73	37,628
Norway, entire system, operating year 1910–11 ...	3,085	85	27,712
Sweden, states' lines, calendar year 1911.	4,418	145	32,879
Japan, states' lines, operating year 1911–12	11,945	456	38,186

(*b*) *Strong Competition with Shipping*

Since Japan is an island empire with a very extended coast-line, the coast-shipping interest is a powerful competitor of the railroads. In this respect Japan may be compared with Italy and England. Consequently it has abundant chance for maritime transportation and numerous good harbors.[1] The coast-line is more than 7,040 miles long,[2] so that to every square mile it has about 9.28 miles

[1] *Cf.* "Nihon Keizai Shinshi," no. 10 of February 18, 1910.

[2] *Résumé statistique de l'empire du Japon*, 1898, pp. 66-67.

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of coast-line. There are about 60 gulfs, and of these about 31 are navigable harbors. Of great importance is the transportation of freight by water, especially freight carried in large quantities, such as coal, grain, wood, *etc.* It is hard to say just how much merchandise is transported per annum by water, since most of the published statistics are unreliable.

But the importance of water-transportation as regards the country's industrial development is shown by the fact that the ships not belonging to the large companies have increased in both number and size, notwithstanding the fact that the government has given these companies no financial help.[1] And it is also to be noted that most of these ships are engaged in coastwise traffic.

There are, furthermore, a number of canals; in the year 1906 there were 117 of these, all told, and their combined length amounted to about 64 miles.[2]

According to an investigation made in the year 1910 at

[1] According to the report of the Department of Communications (see "Toyo Keizai Shimpo," no. 623 of February 5, 1913, p. 9) the number and tonnage of ships of more than 500 tons was:

1.	2.		3.		4.	
End of Year.	Number—Gross Tons (of all ships).		Number—Gross Tons (of all ships not belonging to the five large companies).		Percentage of 3 to 2 Ships—Tonnage	
1894.....	91	117,325	46	37,000	50.5	31.5
1896.....	174	298,589	90	27,596	51.7	39.4
1906.....	455	922,622	193	345,370	42.4	37.4
1912.....	526	1,275,910	205	452,977	38.9	35.5

[2] *Cf.* "Meiji Kotsu Hattatsu Shi," p. 4.

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the instigation of a newspaper, the quantity of goods transported in the year 1908 between Tokio and Yokohama was about 3,583,000 tons,[1] and of this *quantity* about 3,500,000 tons were transported by water and only about 83,000 tons by rail. Nevertheless the water traffic between the two places is very little developed; there are only 17 small steamboats against 2,360 wooden ships in the service. Still it is of great importance as compared with the railroad traffic. In my opinion, therefore, it is injurious to the country's industrial progress to make it a principle of railroad policy to transport all freight by land; at all events, goods that are of comparatively little value, and about which there is no particular hurry, should be transported by water. For it would certainly have a damaging effect upon the country's industry if a sharp competition were to arise between the railroads and the ship companies in the matter of transporting freight. For most of the freight transported in Japan is carried in large quantities, such as grain, coal, wood, fertilizer, *etc.* The degree of intensity which exists in the competition between railroads and shipping interests will be treated below.

(*c*) *The Slight Competition Among the Railroads Themselves*

Mention must here also be made of the fact that in Japan, because of her singular geographical character, mutual rivalry among the railroads is very insignificant. Since Japan is so long and narrow, and since, moreover, there is a mountain-chain running through the central portion, both agriculture and commerce have developed strongly along the coasts, where commercial intercourse by water is favored. Under such conditions the island has little room for the competing of the railroads among themselves. The

[1] *Cf.* "*Toyo Keizai Shimpo*," no. 529, July 15, 1910, p. 17.

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Fukushima line, by way of Sendai, and the Fukushima line by way of Akita, would seem at first glance at the map to be rival lines. In reality, however, they are not rivals, because each has its own field of activity. In referring to this subject, Lotz says: "Though various lines may be in competition because, starting from the same point, they reach a far-distant goal by different routes, there is no competition at the intermediate points, which are compelled to use one particular line." [1] The Tokaido Line (a coast line) and the Chuo Line (one running through the center of the main island, Honshiu) seem to compete for the traffic between Tokio and Ogaki; yet the high mountains running between the two roads prevent any competition. Competition between the railroads can only occur where the traffic is local—a point which will be referred to again hereafter. In this respect Japan differs from America and European continental countries.

[1] Lotz, *Verkehrsentwickelung Deutschlands*, p. 34.

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CHAPTER II

Historical Development of the Railroads in Japan

I. PRESENT CONDITIONS

Before we set forth the historical development, we shall first briefly advert to the present state of railroad affairs. At the end of March, 1912, the length of the whole Japanese railway system was as follows:

Government railways	5043.20 miles
Private railways	577.44 miles [1]
	5620.64 miles [2]

That is to say, the private roads constitute about 10 per cent of the entire mileage, and this may really be left out of consideration when studying the main traffic. Therefore, a so-called mixed system exists only in appearance. In reality, regarded from the point of view of the railroad system, it is a system of government railroads. Among the government railroads the most important lines are: in Honshiu, those from Aomori, situated in the northernmost point, to Tokio (457.05 miles), from Tokio to Kobe (375.17 miles), from Kobe to Shimonoseki on the western point (329.21 miles); in Kiushiu, those from Moji to Kagoshima (239.05 miles), from Tosu to Nagasaki (98.6 miles); in Hokkaido, that from Hakodate to Asahikawa (265.36 miles). The normal gauge of the railroads is 3 ft. 6 in.,

[1] Of which 325.77 miles are branch lines.

[2] According to the table on the map which accompanies the Annual Report upon Railroads for the fiscal year 1911-12.

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apart from the branch lines, which have a gauge of from 2 ft. 6 in. to 3 ft. 6 in. It is, therefore, narrower than the standard gauge, a fact of no little significance. According to the *Archiv für Eisenbahnwesen*,[1] in the year 1911 Japan had an average length of 1.6 km. of track to an area of 100 sq. km. In this respect she is behind some of the great powers, and indeed she has only about ¼ the density of the railway systems of Germany (11.4 km.) and of England (12.0 km.), and about ¼ that of Italy (6.0 km.). If we compare the number of km. to each 10,000 inhabitants, Japan again stands behind the other powers with 1.6 km.; indeed, she has only about ⅙ the density of Germany (9.5 km.), ⅕ that of England (8.3 km.), and ⅓ that of Italy (5.0 km.). It is clear that Japan must greatly enlarge her system of railroads if she is to prosper like the highly-civilized countries.

2. THE DEVELOPMENT OF THE GOVERNMENT RAILROADS

(a) *First Period, from the Beginning to the Completion of the Tokaido Road (1872-89)*

The origin of railroads in Japan is of interest in several respects. It was in 1869 that the English Ambassador in Tokio made a proposal to the government in behalf of the construction of railroads. As a consequence, a meeting of the Cabinet was held, in which, despite the opposition of public opinion, which did not grasp the significance and possible results of railroads, their construction was decided upon. But after this first step had been taken, the government found itself in no slight quandary. How were the funds to be secured? The following way out was found: Prince Ito, then Privy Councillor in the Ministry of Finance, was given exceptional power to place a railway loan in England. Thereupon an Englishman, Horatio Nelson

[1] 1913, p. 615.

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Lay, bearing a letter of recommendation from Ambassador Parks, proposed to Minister of Finance Okuma and Prince Ito that he would procure the funds for the scheme. Since the two latter believed, because of the name Nelson, that he was related to Admiral Nelson, the contract between the two parties was concluded whereby a loan of three million pounds, bearing 9 per cent interest and secured by a pledge of the custom-house receipts of the harbor of Yokohama, was to be procured through Lay. When, however, soon after Lay's journey to London, it transpired that he was no relative of the famous admiral, but only an agent, the government wished to withdraw from the agreement entered into with him. It was, however, too late for that, for the Japanese loan had already been placed on the London market.[1]

Meanwhile opposition had arisen in Japan, for it was thought that a foreign debt would inevitably ruin the nation. Furthermore, it was considered necessary to take a stand against the plan of the government on social-political grounds (the coolies and hotels on the Tokaido[2] might be ruined). Lastly, dissenting voices came also from the Ministry of War, which has to-day become a warm promoter of railroad construction.

In the face of such objections, Count Okuma and Prince Ito persevered in striving for the building of the railroads. But it was not until the year 1872 that the 18-mile road from Tokio to Yokohama was opened. The Emperor himself was present at the opening. This government railway was the first railroad of any kind in Japan. Then in December, 1873 the road between Kioto (the former capital) and Osaka was opened, and later, in July, 1874, the Kobe-Osaka line.

[1] This first London loan in the nominal sum of £1 Million (=4.88 Mill. Yen) bore 9% interest (Rathgen, *Japans V. S.*, p. 712).

[2] The Tokaido is a great highway from Tokio to Kobe.

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As time went on no part of the population could fail to realize the powerful influence that the railroads began to exert. Although the government had purposed to connect Kobe and Tokio as soon as possible by rail, the execution of the plan was brought to a standstill because of the disturbances, first in Saga in 1874 and then in Kagoshima in 1877. In January of the same year the railroad between Kioto and Otsu was opened. It is worthy of notice that as early as this the plans for the railroad had been made and executed by Japanese, even though under the supervision of foreigners.

The capital for railroad construction during this time was raised through an industrial loan to the nominal amount of 12½ mill. yen, which was arranged for by Law no. 7 of April 30th, 1878, and the administrative regulation no. 13 of May 1st, 1878, in order to provide extraordinary means for public works (railroads, harbors, mines) and for the support of industrial enterprises.[1] A sum of about 5 million yen (more exact estimates are nowhere to be found in public reports) of the total amount was appropriated for the building of railroads.[2] Since 1879, when the construction of the Kioto-Tsuruga line was completed, the government had been in great financial straits. The funds collected through the loan naturally did not suffice, and the placing of a new loan was attended with difficulties. At this time the continuance of the system of government railroads had not been definitely determined upon;[3] that is to say, the government then rather leaned toward a system of private railroads.

[1] Rathgen, *Japans V. S.*, pp. 708-9. The interest was 6% and the nominal sum 12.5 Mill. Yen.

[2] *Cf.* "Nihon Tetsudo Ron," p. 35 and Kikuchi, *D. S. R. J.*, p. 52, estimated the appropriation at 4.8 Mill.; whereas in "Japan in the beginning of the twentieth century," p. 530 the sum of 5694300 Yen is given.

[3] *Cf.* Rathgen, *Japans V. S.*, p. 246.

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In that period (1883, the beginning of the second period of the development of economic policies) the first private railroad company was formed, while on the other hand the government decided to place a railroad loan (Nakasendo Tetsudo Kosai) in order to carry out the building of the line leading through the Nakasendo (the old main mountain road of Middle Japan). The loan was a domestic one at 7 per cent to the amount of Y20,000,000. This line was to be combined with a private railroad in Takasaki, a rather large commercial city of the province of Gumma. As far as Takasaki, a stretch of the present O-U line (Tokio-Fukushima-Akita) had been opened to public traffic by a newly-founded railroad company (Nihon-Tetsudo-Kwaisha). Thereafter, in 1884, ground was broken simultaneously for various junction lines, via Takasaki, via Naoetsu on the west coast (Niigata Ken), on the Biwa Sea and via Nagoya.[1]

The first plan for the Nakasendo line was frustrated by the difficulties that arose from the nature of the soil. Therefore, in June, 1884,[2] instead of the Nakasendo line, the Tokaido line was selected, having three advantages as against the former: (1) smaller cost of construction; (2) the trains could attain a higher speed; (3) communication with several large cities could be established. So the building of the Tokaido line was carried on with all speed, and completed on July 1st, 1889. On this line are situated the large cities Osaka, Kioto, Nagoya, Shizuoka and Yokohama.

At the same time various branch lines were brought to completion, as, for instance, that from Ofuna to Yokosuka (an important naval port) and that from Maebara to

[1] Rathgen, *Japans V. S.*, p. 247.

[2] "Meiji Kotsu Hattatsu Shi," p. 128 (according to "Nihon Tetsudo Ron" the date should be the spring of 1886).

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Tsuruga (an important seaport on the west coast, through which commerce with Vladivostoc was carried on).

The money raised by the Nakasendo Railroad loan was used in the construction of the Tokaido line and other junction lines. With the finishing of the Tokaido line and the various branch lines mentioned above, the construction of the initially projected state line was completed. At the end of the year 1893 (as Table 2 shows) the state lines had a working length of 550.6 miles. This period I should designate as the first phase of the development of state railways. It is easy to understand that the financial results of the state railroads were not yet very favorable in this period. Although the working surplus (see Table 2) (since 1885) was about 4 per cent of the original capital invested, this sum was naturally too small to allow of the paying of interest on the capital debt, for the rate of interest on all loans having to do with railroad construction amounted to more than 6 per cent. Thus the state railways of this period were somewhat of a burden to the state finances. Therefore, when Rathgen says that "the railroad has for years (more exactly since 1880) yielded full interest on its capital," [1] the statement does not seem to be correct.

(*b*) *Second Period, from 1890 to the Nationalization of 1906*

During this period the private railroads underwent great development, while the state railroads had no significant advance to record. Above all, it was seen to be necessary to unite the scattered lines and, in future, to distribute the stretches of railway as evenly as possible over the entire country. So, in June, 1892, a Railroad Construction Law no. 4 was promulgated, which held out the prospect of the building of the following lines:

[1] Rathgen, *Japans V. S.*, p. 245.

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I. Chuo lines: (1) from Hachioji or Gotemba via Kofu to Nagoya; (2) from Nagano or Shinonoi via Matsumoto to the junction with the first line; (3) from Kofu to Iwabuchi.

II. Chuo-Hokuriku-junction line (central and northern Japan), from Gifu or Matsumoto via Takayama (Gifu-Ken) to Toyama.

III. Hokuriku line (north Japan), (1) from Tsuruga via Kanazawa to Toyama, and from this line to Nanao.

IV. Hokuriku-Hokuetsu junction line, from Toyama to Naoetsu (a harbor city on the west coast).

V. Hokuetsu line, from Naoetsu or Maebashi or Toyono (Nagano-Ken) to Niigata and Shibata.

VI. Hokuetsu-Ou junction line, from Shibata to Yonezawa or from Naoetsu via Wakamatsu to Shirakawa-Honmiya.

VII. O-U lines: (1) from Fukushima via Yonezawa, Yamagata, Akita and Hirosaki to Aomori, and from this line to Sakata (Yamagata-Ken); (2) from Sendai via Tendo (Yamagata-Ken) or Ishinomaki (a seaport on the east coast), via Koteda to Funagata-Machi; (3) from Kurozawa or Hanamaki to Yokote; (4) from Morioka via Myako and Wakata to Yamada.

VIII. The Sobu and Hitachi lines: (1) from Ueno (Tokio) via Chiba and Sakura as far as Choshi (a seaport), and from this line to Kisarazu.

IX. The Kinki lines: (1) from Nara to Tsuge (Mie-Ken); (2) from Osaka or Yagi or Takata (Nara-Ken) via Gojo to Wakayama; (3) from Kioto to Nara; (4) from Kioto to Maizura (a naval port on the west coast).

X. Sanyo lines (west and south Japan): (1) from Mihara (Hiroshima-Ken) to Shimonoseki, a harbor city at the extreme end of the mainland Honshiu; (2) from Kaidaichi to Kure (a naval port on the coast of the Seto inland sea).

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XI. Sanin line (western Japan), from Maizura via Toyooka, Tottori, Matsue and Hamada to Yamaguchi.

XII. The Sanin Sanyo junction lines: (1) from Himeji via Ikuno or Sasayama to Maizuru or Sonobe, or from Doyama (Hiogo-Ken) via Fukuchiyama to Maizuru; (2) from Himeji to Tottori or from Okayama via Tsuyama to Yonago and Sakai, or from Kurashiki or Tamashima (Okayama-Ken) to Sakai; (3) from Hiroshima to Hamada (Shimane-Ken).

XIII. Shikoku lines (Shikoku is an island between Honshiu and Kiushiu) (1) from Kotohira via Kochi to Suzaki; (2) from Tokushima to the first line; (3) from Tadotsu via Imaharu to Matsuyama.

XIV. Kiushiu lines (south Japan): (1) from Saga to Saseho (naval port) to Nagasaki (oldest harbor city); (2) from Kumamoto to Misumi, and from Udo on this line to Oida; (3) from Kokura to Kagoshima; (4) from Iizuka (Fukuoka-Ken) to Hara; (5) from Kurume via Yamaga to Kumamoto.

The said railroad-construction law provides that none of the lines built can be altered without the consent of Parliament. Up to the present time building has gone on under this restriction.

In the same year (1892) a railroad commission was organized by imperial decree no. 151, whose duty it was to advise the government as to the sequence of construction and the covering of the expenses of the lines named. A branch line from Tokio to Naoetsu (Niigata-Ken), for which ground had been broken immediately after the reestablishment of the Tokaido line, and which cut diagonally through the Usui Mountains, was opened to traffic. The construction had been rather difficult.

The government had from the beginning not proposed to construct all these important lines itself, but it had en-

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trusted several of them to private railroad companies. For instance, the Ikuno-Himeji line to the Bantan Railroad Company, the Mito-Iwanuma line to the Nihon Railroad Company, the Naoetsu-Niigata-Shibata line to the Hokuetsu Railroad Company. In Hokkaido ground had been broken for the construction of the Hokkaido Railroad by the end of the year 1879, and in November, 1880, the stretch from Temiya to Sapporo (216.8 miles) was opened. This short stretch of government road in Hokkaido (Temiya to Sapporo) was sold to the Hokkaido Tanko Tetsudo Kwaisha (Coal R. R. Co.) in June, 1889, because the government was in financial straits. Thereof more below.

After the war with China (1894-5) the need for an extension of the government railroad system became evident, and since July, 1898, the time of the opening of the track from Sorachita to Asahikawa (36.17 m.), the state railroads in Hokkaido have reached a length of 223.24 miles as reckoned in the year 1905.

The total length of the state railroads operating in this period was, in 1905, 1469.9 miles (see Table 2), which was three times as much as in the former period (see page 21). The most important state railroad lines are the following: Tokaido, Hokuriku, Shinetsu, O-u, Chuo, Shinonoi, Inyo (Sanin and Sanyo), Kagoshima, Kure and Maizuru lines.

The construction and improvement costs of the state railroads in this and the previous period amounted to about 124 million yen, and were largely covered by the loans which are indicated in the following table (see next page):

The remaining amount of about 46 million yen needed to cover the total construction costs was provided from the general state income.

If we look at Table 2 we find that the proceeds of the state railroads were continually growing, inasmuch as an

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Name of Bonds.	[1] Nominal amount of bonds (yen).	Percentage of interest.	Date of bonds, of contracts or of laws.	Place of issue.
1. London Bonds	4,880,000	9 %	April, 1870	London.
2. Industrial Bonds which in the aggregate amounted to 12.5 mill. yen.....	5,694,300	6	30. 4. 1878	Home.
3. Nakasendo Railway Bonds	20,000,000	7	28. 12. 1883	Home.
4. Railway Supplementary Bonds.	2,000,000	5	28. 1. 1889	Home.
5. Railway Bonds	44,981,750	5	20. 6. 1892	Home.
6. Railway Bonds	17,577,750	4	19. 4. 1899	London.
7. Hokkaido Railway Bonds	2,000,000	4	19. 4. 1899	London.
8. Hokkaido Railway Bonds	2,912,000	5	13. 3. 1899	Home.
9. Industrial Bonds which in the aggregate amounted to 66,925,200 yen.	[2] 24,431,400	5	29. 3. 1896	Home.
10. Industrial Bonds which in the aggregate amounted to 78,052,250 yen.		4	19. 4. 1899	London.
Total....	124,477,200			

operating surplus of 6 per cent was reached, while the capital liabilities, as a domestic loan, called for a 5-per-cent interest, although it was always difficult to place the bonds.

(c) *The Third Period, from the Nationalization to the Present Time*

The present condition of the state railroads will be treated in the following sections.

3. THE DEVELOPMENT OF THE PRIVATE RAILROADS

(a) *The First Period, from 1883 to the War with China (1894-95)*

The history of the origin of the private railroads, like

[1] This schedule is derived from "Japan in the Beginning of the 20th Century" (pages 527–534).

[2] How much of this sum is in 5 % bonds is not known.

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that of the state lines, possesses points of interest. Indeed, it is through this history that we are able to understand the then existing policy of the government regarding railroads.

It was a Yokohama merchant, by the name of Takashima, who was the first in Japan to voice the plan of building private railroads. As early as 1869 Takashima had approached the former reigning princes, the Daimyos, for funds for private railroad construction. The Daimyos, however, were not sufficiently convinced of the value of modern culture, and would give ear to no such plan. Somewhat later a Daimyo of Awa, Hachisuka, who was in England at the time, emphasized in a letter to one of his peers the fact that the construction of railroads was a necessity in the advance of culture. On March 23rd, 1873, one year after the opening of the road from Tokio to Yokohama, several Daimyos (Ikeda, Hosokawa, Yamanouchi, Kamei, Mori, Date and Matsudaira) sent a petition to the Dajokwan, who was then Prime Minister, asking for the right to build a road from Tokio to Aomori. On the advice of Marquis Inouye the petition was altered to a request for permission to purchase the existing state line (Tokio to Yokohama, 18 miles long). After long consultations, a contract was entered into by the government and 26 men of noble family constituting the Tokio Tetsudo Kwaisha Railroad Company,[1] whereby the Tokio-Yokohama Railroad and its premises and buildings went to the company for the price of 3 million yen, this to be paid in seven annual instalments.[2] The reasons for this somewhat singular agreement cannot be understood without further study. At all events, the

[1] Strictly speaking it must have been a co-operated association like the "genossenschaft."

[2] Paying terms were January and July. The amount to be paid every time was to be 214000 Yen, (in the last term Y 218000), and the capital paid up was to be allowed 6% interest until the last installment had been paid.

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government's intentions concerning this contract were, first, to get hold of the property of the former nobles for the railroad enterprise, and, secondly, to rescue the government itself from the financial difficulties into which the construction of railroads had brought it. I am unable to understand how the promoters of the agreement could say in explanation: "The state must sell its existing (already profitable) lines, build new ones with the proceeds, and sell these latter when they are in good running order." [1] The company had to dissolve soon after the second instalment of the purchase price had been paid. The chief cause of the dissolution of the company is a financial one—the fact that there was a drop in the quotations of securities, which necessitated a stopping of the instalment payments. Therefore, despite all Shibuzawa's efforts,[2] the company was dissolved on March 18th, 1878.

On May 27th, 1879, one year after the dissolution of the Tokio Railroad Company, Prince Iwakura and several other noblemen founded the so-called Nobles' Bank — the Fifteenth National Bank—for the promotion and consolidation of industrial enterprise, particularly railroad construction. Soon after the establishment of this bank the revolt in Satsuma (in Kiushiu) broke out. The money needed to crush this absorbed the banknotes which had been issued by the Nobles' Bank, for the nation at once

[1] Rathgen, *Japans V. S.*, p. 246.

[2] The following three plans of Shibusawa's for the continuance of the instalment payments remained without result.

1. The emission of Banknotes on the First National bank (Daiichi Kokuritsu Ginko), for which the certificates of the Nobles' obligation (Kinroku Kosai Shosho) will be kept in that bank.

2. The establishment of a special bank, whose notes shall be used for the payment of instalments.

3. The sale of the Nobles' certificates of obligation and purchase of stocks of the First National bank, so that the instalments might be paid from the dividends of that bank.

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borrowed 15 million yen, at 5 per cent interest, and the plan for the railroads had to be laid aside for the time being. Meanwhile the construction of the Tokio-Aomori road was being projected by Hayashi, Otaguro, *etc.*; the government, however, refused its consent. It is questionable whether it did this because it already favored the system of national railroads. The probable fact is that the government had more faith in the earlier founders than in Hayashi, *etc.* Somewhat later, in November, 1881, a railroad company called the Nihon-Tetsudo-Kwaisha was chartered, which company undertook to construct a road from Tokio via Takasaki, Shirokawa, Sendai and Morioka as far as Aomori.[1] The charter had provisions so advantageous to the company that the "state guaranteed 8 per cent interest on the capital paid for each of the five sections; for the three sections going as far as Sendai, this was guaranteed from the time of the first payment until ten years after the completion of each section; for the two northern sections for fifteen years."[2] It was further decided that state property, which should be required for the construction of the railroad, the stations or the warehouses, was either to be leased without profit or sold at a reasonable rate. Opposed to these advantageous provisions were some imposing certain obligations upon the company, namely: it was to begin the construction within six months of the granting of the concession, and complete all the lines in 7 years. The term of the charter was arranged as 99 years from January, 1882, and at the same time the right was given to the government to buy in the railroad after 50 years of the time had passed. It follows from the above that the government could bring pressure to bear for a

[1] The company was established by 463 people, among whom were counted Marquis Ikeda and some other Nobles.

[2] Rathgen, *Japans V. S.*, p. 24.

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speedy completion of the construction, and could await a favorable moment for nationalization.

The capital of the company amounted to 20 million yen.[1] The founders had pledged themselves to a payment of 5 millions of this amount. Financial difficulties again arose here, especially as a result of a fall in the quotations of the securities for liquidating the debt.[2] Moreover, it happened that, on account of economic depression, the subscription for shares was so slight that, after much trouble, only 2 million yen could be collected.[3]

In the spring of 1882 the company borrowed a sum of 300,000 yen from the government. Thereupon construction was commenced in March, and in July, 1883, a stretch of 38 miles between Ueno (a north station in Tokio) and Kumagai was opened to traffic as the first private railroad.

After the opening of a stretch of the Ueno-Kumagai road, the disposal of shares became easier, and by the end of 1883 the whole capital raised amounted to more than 5 million yen. In the spring of 1884 the first results of the enterprise were made public, and it was seen that the surplus was more than 10 per cent of the capital invested.[4] This announcement was followed by a lively demand for shares, so that their market value kept growing higher.

[1] But only 16 millions of this sum were necessary, since the purchasing power of money increased (Rathgen, *Japans V. S.*, p. 246).

[2] The exchange value of 84,5 Yen in Sept. 1878 fell to 61,6 Yen in Dec. 1880; and then rose above par in Dec. 1885 (Rathgen, *Japans V. S.*, p. 708).

[3] Shortly before the company was chartered Prince Iwakura (founder of the Nobles' bank) negotiated with the provincial governors, to find as many shareholders for the railroads in their respective districts as possible, and pursuaded the Nobles, to invest their Nobles' obligations in the r. r. enterprise.

[4] Of course the interest guarantee of 8% should be included in it (Nihon Tetsudo Ron p. 58); and *cf.* Rathgen, *Japans V. S.*, p. 250.

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From this time on railroad projects sprang up like mushrooms.

As a result of great activity in construction, the Tokio-Aomori line, 529 miles long, was completed in September, 1891, three years after the expiration of the term appointed in the charter. Furthermore, the company had at the same time finished the following branch lines, not provided for in the charter: the Akihappara, Yamate, Kaigan, Shiogama and Yato lines. On May 25, 1906 (six months before the nationalization), the term during which the support of the 8 per cent interest had been guaranteed expired.

The following table gives the particulars of the operations of this first private railroad company (see next page):

The business had, therefore, now become successful, and the shares of the company were much in demand on the exchange. In consequence of the good results of the "Nihon-Tetsudo-Kwaisha" enterprise, countless private railroad companies were founded all over the country.

Some years after the formation of the "Nihon-Tetsudo-Kwaisha," Mayeda, one of the most powerful lords of feudal times, and several other nobles planned to form a private railroad company—"Hokuriku-Tetsudo-Kwaisha"—in northern Japan, and again the government promised support along various lines. Nothing came of it, however, because of difficulties met with in raising capital. At this time the people in general were little inclined to take part in railroad enterprises, though the publication of the large surplus of the Nihon R. R. Co. influenced them somewhat in that direction. In June a small Hankwai R. R. Co. (from Osaka to Sakai, 6.19 miles long) was founded; in December 1886, the Iyo R. R. Co. on Shikoku Island (from Matsuyama to Mitsu, 40 miles long); in May, 1887, the Ryomo R. R. Co. (from Koyama to Maebashi, 52 miles

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1. Operating year.	2. Capital stock nominal amount.	3. Capital stock paid up.	4. Reserve funds.	5. Liabilities.	6. Average mileage open to traffic.	7. Working surplus,	8. Surplus per mile	9. Per cent. of 7th to 2nd column about.	10. Per cent. of 7th to 3rd column about.
	yen	yen	yen	yen		yen	yen	%	%
1883.....	5,965,700	3,821,872	....	....	48.13	{ 189,567 [1] 52,777 }	3936	3	5
1887.....	11,829,500	8,772,256	126,991	....	223.35	{ 589,445 [1] 172,341 }	2525	5	7
1892.....	20,000,000	19,196,940	598,099	765,000	591.61	{ 1,112,822 [1] 544,929 }	1881	5	6
1897.....	66,000,000	40,257,704	851,835	295,000	768.43	{ 3,420,566 [1] 508,002 }	4451	5	8
1902.....	66,000,000	46,500,000	1,872,172	151,000	857.07	{ 5,530,380 [1] 371,156 }	6453	8	12
1905.....	66,000,000	50,400,000	2,807,927	....	862.38	{ 8,174,807 [1] 46,109 }	9473	12	16

[1] Amount of States Subvention.

(This Table is taken from "Meiji Shijunendo Tetsudo Kyoku Nenpo." Appendix, pp. 22 and 27.)

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long), and the Mito R. R. Co. (from Mito to Koyama, 42.2 miles long), northeast of Tokio.

From that time on the Japanese began more and more to realize the great significance of railroads, so that, favored by the improvement of economic conditions, the railroad enterprises were regarded with rising enthusiasm. In 1888 the two largest private railroad companies were formed—the Sanyo Co. and the Kiushiu Co., receiving a guarantee of 4 per cent interest.[1] The Sanyo road forms the through connection from mid-Japan to Kiushiu and, following the south coast of West Japan, leads from Kobe via Hyogo, Himeji, Okayama, Hiroshima to Shimonoseki. The stretch of road between Hiroshima and Shimonoseki had not yet been built at the time of the war with China—it was not finished until May 1901.[2] The main line of the Kiushiu road goes from Moji, in the northernmost part of Kiushiu, in a westerly direction via Kokura and Orio along the north coast to Hakata, then turns inland to the south, reaches Tosu, and there divides, one division going to Nagasaki and the other to Kumamoto.[3]

The capital invested and the working surplus of these great companies were as follows:[4]

Operating year	Nominal capital (1000 yen)	Capital paid in (1000 yen)	Working surplus (1000 yen)
(a) Sanyo Co.			
1888.....	13000	1375	29
1895.....	18000	7800	1021
1898.....	24000	15840	1286
1903.....	32000	24985	2840
1905.....	36100	30849	3742

[1] *Cf.* Rathgen, *Japans V. S.*, p. 250. The Sanyo R. R. Co. received a guarantee of 4% interest a little after its establishment.

[2] See *Mitteilungen D. A. G.*, 8 vols., 1899-1902, p. 122.

[3] *Mitteilungen D. A. G.*, 8 vols., 1899-1902, p. 122.

[4] "Meiji Shijunendo Tetsudo Kyoku Neupo" appendix, pp. 23, 24, 41, 78, 97.

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(b) Kiushiu Co.

1889.....	7500	2991	61
1895.....	16500	8421	698
1898.....	30350	24638	1616
1903.....	49000	44823	4022
1905.....	62000	48739	4962

It will be seen from the above table that the operating results of these two companies were rather good. The additional sum that the state paid to the two companies in this period—up to 1894—in order to fulfil its guarantee of 4 per cent interest, was 485,574 yen.[1] In the same year still more private railroad companies were formed, namely: the Sanuki road on the island of Shikoku (Marugame-Kotohira, 10 miles), the Kwansai road east of Osaka (Yokkaichi-Kusatsu and Kawarada-Tsu-Yokkaichi-Kuwana, together 72 miles), the Kobu road (Shinjiku, a station west of Tokio, to Hachioji, 21 miles), and the Osaka road (Umeda, a station in the center of Osaka, to Nara, 37 miles).[2] In November of the following year, 1889, a Hokkaido Coal Railroad Company was chartered, which is in close connection with the Nihon Railroad Company. The Hokkaido Coal R. R. Co., as has already been mentioned, was formed for the purpose of buying from the government, and operating, the state road from Temiya to Poronai.[3]

[1] "Meiji Shijunendo Tetsudo Kyoku Nenpo," appendix, pp. 79, 97.

[2] The invested capital of these small companies was 25000 (minimum) to 3000000 (maximum) Yen.

[3] "Of the previous history of this road the following is told us: It was built to connect the capital of Hokkaido-Sapporo and the Poronai coal-mine with the sea. Since 1882 its total length had been open to traffic. In consequence of the "American" system of construction, such large repairs were necessary each year that in the four fiscal years from 1883-86 the receipts were almost Y52,000 behind the expenditures. Moreover the Poronai mine yielded only occasional profits. In 1886 Ts. Murata who up to then had been director of the mine and railroad administration, withdrew from the government service and, combining with others in the Hokuyusha Company, took over the purchase of

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The 5-million-yen capital of this company was guaranteed by the state for 11 years at 5 per cent.[1] The rate of interest is, therefore, somewhat higher than that on the capital of the Sanyo and Kiushiu roads.

This same year (1889) three more private railroad companies were brought into existence, namely: the Chikuho road on the island of Kiushiu (Wakamatsu-Iizuka and Nogata-Kandamura, 29 m.), with a capital of 1 million yen; the Koshiu road (Kofu-Matsumoto, 72 m.), with a capital of 53 million yen, and the Sobu road, east of Tokio (Koiwamura-Sakura, 25.3 m.), with a capital of 254,000 yen.

We have already emphasized the fact that enterprise in building railroads had suddenly been aroused. The failure of the rice crop caused an increased importation of foreign rice—a fact which gave rise to a small economic crisis and resulted in a cooling of the "railroad fever."[2] Because of this crisis, several companies found it necessary to discontinue their construction and operations, and to solicit a purchase of their lines by the government. Despite this, the formation of new railroad companies took place in 1890. There were, however, only two, namely, the Buzen road in Kiushiu and the Sangu road in Honshiu. Notwithstanding the crisis, the construction carried on by the larger existing companies did not come to any standstill.

The state of affairs just described relative to the private railroads, continued until the war with China (1894-5). It forms the first phase of the development of the private roads.

the coal and the management of the railroad under a lease of Y 5,000. Under the new control the railroad yielded a surplus of Y 33500 as early as 1887-88." (Rathgen, *Japans V. S.*, p. 248.)

[1] *Cf.* Rathgen, *Japans V. S.*, p. 248.

[2] See "Meiji Kotsu Hattatsu Shi," p. 126.

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By the end of 1893 the total length of private railways open to traffic was 1,367.77 miles, that is, about 2½ times the length of the government railroads — 557.49 miles. The whole system was divided among 16 companies, whereof only four had more than 100 miles under their own control, namely: (1) the Nihon road, 591.61 miles; (2) the Hokkaido-Tanko road, 204.71 miles; (3) the Sanyo road, 145.24 miles, and (4) the Kiushiu road, 146.61 miles.[1] In the working year 1893 the combined surplus of all the private railroad companies was 6 per cent on a capital of 52,049,889 yen (see Table 1).

On the whole, the network of railroads had expanded relatively little in this period, in consequence of which there is little competition to be noticed; whereas it usually appears very clearly in countries that have a system of private railroads.

(*b*) *The Second Period, from the War with China to the Great Nationalization (1895-1906)*

After the war with China, as has been briefly shown in the first chapter, Japanese economic life in all its phases made great progress, especially on the side of industry. Corresponding to this general economic advance, the system of private railroads also expanded. The further it spread, the more did the accompanying disadvantages come into evidence. Up to the end of 1897, 49 new private railroad companies were formed, a detailed description of which may be omitted. It is obvious that a "railroad fever" such as we have shown this to be must have disadvantageous effects. In 1898 a serious crisis threatened the economic life of the country. The result was that in the year 1898-99 no fewer than 15 private railroad companies, which had already requested charters for construc-

[1] *Cf.* "Meiji Shijunendo Tetsudo Kyoku Nenpo," appendix, pp. 22-45.

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tion, had to dissolve because their efforts to collect sufficient capital with which to build had failed. The length of the roads belonging to these companies was 1226 km.[1] By June, 1900, many stretches of road were incorporated in other railroads: the Nihon road bought in the Mito-Nikko and Ryome road, the Kwansai road took over the possessions of the former Naniwa and Osaka Railroad Company, the Hankwai road took the Settsu Railroad Company into its hands, while the Kiushiu road took the Chikuho and the Imari roads. The Nara road acquired the former Hatsuse road. The Hankwai and Nankwai roads, and the Kwayo and Kwanan roads were merged into combined enterprises; and the two roads of Dogo and Nanyo were likewise united in the one railroad company—the Iyo Tetsudo Kwaisha.[2]

It is evident that the splitting up of the railroads into countless small companies would make the permanence of a great number questionable. This is not, however, explained by mutual competition. This element plays no important rôle here because, on the one hand, of the peculiar geographical formation of Japan and, on the other hand, of the railroad law of 1892 which, if it did not altogether prevent competition, at least greatly diminished its possibility. The Private Railroad Law no. 64 of March, 16th, 1900, stood in the way of the formation of new private railroad companies, for it took from the latter their right of mortgaging railways and buildings.[3] Under such conditions only a few small railroad companies (the Jobu-Mito-Shinsan-Yokohama-Shinhei-Kokura lines) were chartered after 1901, while the existing companies constructed very few

[1] *Mitteilungen D. A. G.*, 8 vols., 1897-1902, p. 131.

[2] *Cf. Mitteilungen D. A. G.*, 8 vols., 1897-1902, pp. 130-131.

[3] This limit had been put aside by the R. R. Mortgage Law, No. 53 of 13th March 1905.

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new stretches of road. The absorption of the smaller by the larger companies went on, and, indeed, by February, 1905, the Bushiu and Karatsu roads had combined with the Kiushiu road, the Ota road with the Mito,[1] the Bantan and Sanuki road with the Sanyo, and the Kiwa, Nanwa and Nara roads with the Kwansai. The combining of the private railroad companies after the war with China is shown in the following table:[2]

Working year.	Number of companies.	Entire average mileage open to traffic.	Entire average mileage per company.	Number and Average Mileage of those companies, each of which owned more than 100 miles open to traffic.	
1894.....	20	1537	76	4	1139
1895.....	40	1679	41	4	1193
1896.....	50	1800	32	4	1245
1897.....	66	2282	39	5	1690
1898.....	58	2642	45	5	1776
1900.....	55	2905	52	5	1901
1903.....	46	3140	68	6	2170
1904.....	39	3228	82	6	2342

The total road length of 2,342 miles operated by the six large companies was divided as follows in 1905: (1) The Nihon road with 860 miles in northern Japan; (2) the Kwansai road with 280 miles in middle Japan, between Osaka and Nagoya; (3) the Sanyo road with 393 miles on

[1] This Mito R. R. Co. was newly established in 1901.

[2] This table is taken from the book, "Meiji Shijunendo Tetsudo Kioku Nenpo," appendix, p. 45.

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the south coast of west Japan; (4) the Kiushiu road with 443 miles on the island of Kiushiu; (5) the Hokkaido Tanko road with 208 miles on the island of Hokkaido (Temiya-Poronai); (6) the Hokkaido road with 158 miles on the island of Hokkaido (Hakodate-Otaru).

The foregoing statement shows that each of the large private railroad companies has its own territory, so that there can be no idea of competition among them. This fact, as has already been mentioned, is connected with the geographical conditions of Japan, which must not be ignored in a consideration of the reasons for the nationalization.

The following table shows how the capital of the private railroad companies was raised in this period: [1]

Fiscal year.	Capital		Reserve funds, yen.	Obligations, yen.	Other debts, yen.
	Nominal, yen.	Paid in, yen.			
1894.....	80,290,200	59,176,637	1,322,085	5,778,000	877,000
1897.....	175,396,000	122,542,091	2,169,267	5,410,000	2,276,952
1900.....	238,042,550	181,267,472	3,635,854	11,017,800	2,498,153
1905.....	270,166,800	223,336,716	8,057,196	29,765,594	3,485,641

In the last ten years the capital paid in has increased about threefold, and the bonded debt about sixfold. Without doubt, such a great investment of funds in railroad enterprise had some effect upon the economic crisis of 1900.

[1] This table is taken from "Meiji Shijunendo Tetsudo Kyoku Nenpo," appendix, p. 45.

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Meanwhile, as Table 1 shows, the course of business of the private railroad companies was comparatively good, in that an average interest of 8 per cent on the original capital invested was obtained. One of the three most important private railroad companies, the Nihon road, had throughout most of its existence paid 12 per cent dividends, and those of the Sanyo, the Kiushiu and the Hokkaido-Tanko roads were about 8 to 10 per cent; though these four roads, and later the Hokkaido road, also had, as has been mentioned, been guaranteed 4, 5 and 6 per cent interest,[1] while the smaller local roads yielded an interest of at least 2 to 4 per cent. In general, it may be said that the affairs of the Japanese private railroads were in a rather favorable condition, exclusive of the small companies which, in the time between 1897 and 1900, had to dissolve or combine with other companies, on account of financial difficulties.

Under these conditions, the most important private lines were taken over by the government in 1906, immediately after the war with Russia, and the now-existent private roads play no further part in the main lines of commerce, because, like the branch lines, they serve only for local traffic. It will be interesting to compare the development of the railroads with that of the general economic life. In the first period of experimentation (see Chapter I)

[1] The entire sum of state subvention in 1883-1905 was as follows (according to "Meiji Shijunendo Tetsudo Kyoku Nenpo," appendix, pp. 77, 79, 97, 99, 100):

Nihon Co.	9,028,114 yen
Sanyo Co.	488,887 "
Kiushiu Co.	550,549 "
Kokkaido Tanko Co.	1,484,371 "
Kokkaido Co.	1,109,827 "
Total	12,661,748 "

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the state began the construction of railroads; the second and third periods bring order and expansion — in them other private enterprises thrive, as well as railroads; in the fourth period of continental expansion the private railroads pass over into the hands of the state.

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CHAPTER III

Reasons for and Accomplishment of the Nationalization

I. Retrospective View of the Development of Proposals for Nationalization

Before we enter into an examination of the reasons that led to the acquisition of the railroads by the government, we must first make it clear how the proposal for nationalization had developed in Parliament. It had to be brought up there five times before it was accepted.

The first proposal for nationalization came from the Matsukata Cabinet. In November, 1891, a motion for nationalization, together with one for a railroad loan, was brought up in the second session of Parliament by the Matsukata Cabinet. It was, however, rejected by the special committee of the lower house, while the railroad-loan motion was not carried through because Parliament dissolved. According to the memorandum of the government, it was really purposed to help by nationalization those companies which could not collect building funds on account of bad economic conditions, and by so doing to further the rapid expansion of the railroad net. In the meeting of the special committee the motion was rejected because nationalization, as they thought, would result in nothing but an unnecessary patronage of the companies concerned. It was further pointed out that most of the members of the Cabinet had belonged to the previous Cabinet, which had, several years

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before, consented to the sale of the State road in Hokkaido (Temiya-Poronai) to a railroad company (*cf.* II, 2). This fact caused the people to distrust the government. When, then, the special committee was in a position to report their recommendation of the rejection of the government's motion to Parliament, the latter body was dissolved.

The second resolution for nationalization also came from the Matsukata Cabinet. In the third session of the Parliament of May, 1892, the Matsukata Cabinet again brought up the same resolution in favor of nationalization. The result was the issuance of the law for railroad construction. As has already been mentioned, the purpose of this law was to construct all the roads in such a way that all traffic on land would be systematically connected. With this idea in view, only such private roads were to be planned as could later be taken over by the state. As a consequence, the Matsukata Cabinet did not succeed in pressing its motion through, even though the Parliament did dissolve.

The third motion for nationalization was made by the Liberal party. After the war with China, many railroads were built in consequence of the "railroad fever." These had in part to struggle against great difficulties. Therefore, the Liberals in 1899 again proposed in Parliament that the nationalization of the private roads be decided upon, and this proposal was accepted by a majority of 145 to 127. Thereupon the Yamagata Cabinet appointed a commission of inquiry, naming as president Vicomte Yoshikawa, the then Minister of Communications.[1] After long deliberation, the commission reported to the government a motion for nationalization, which, however, was not accepted because

[1] "Tetsudo Kokuyu Shimatsu Ippan," p. 11: After the fall of the first constitutional cabinet the Liberal party united temoparily with the Yamagata cabinet on condition that the bill for the nationalizaion of railways be brought in.

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the session of Parliament had come to an end.[1] That the Liberal party, which had once taken sides against the Matsukata Cabinet on the question of the government taking over the railroads, now became its advocate, is to be explained by the fact that the private railroad companies which hoped to profit by the nationalization, endeavored to draw the members of the Liberal party over to their side. Despite the pleasant relations between the administration and the Liberals, the proposal for nationalization was not at once accepted, because the former wished to keep its hold on the Liberal party. Thereupon the Liberal party brought in a proposal whereby a large railroad company should be formed out of the existing private roads (the Sanyo, Nihon and Kiushiu roads), and the Tokaido state road re-established.

The fourth move for nationalization was made by the Yamagata Cabinet. During the consideration of this proposal of the Liberal party, the government in 1900 submitted a resolution for nationalization to the Parliament, which motion failed, however, because of the opposition of 30 members of the Liberal party, and almost all the members of the Imperialist party (Teikokuto), the Progressive party (Shimpoto), and the neutral party. But in that very year a private railroad law (no. 64 of March 16th, 1900) was promulgated instead of a nationalization law. From this time on public opinion began to be active. There were two sets of opinions. The arguments against the nationalization are to be found in a booklet by Professor Minami, entitled, "Concerning Railroad Management," in which he maintained with great enthusiasm that mutual freedom in competition and good inter-communication

[1] According to the Report of this commission the cost of the nationalization is estimated at about Y 200 Mill., which should be raised by the R. R. loan at 5% interest (*cf.* "Meiji Kotsu Hattatsu Shi, p. 150).

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formed the only path to progress in the field of railroad activity. As a man of affairs, Goba, drector of the Sanyo road gave his opinion, which was unfavorable to nationalization, and based on a comparison of the liabilities of state with private transportation according to statistical evidence.

The receipts and expenditures per mile of the most important state and private roads in a day for 1903 were as follows:[1]

	Receipts (yen).	Expenditures (yen).	Surplus (yen).
States roads:			
Tokaido Line	95.60	35.79	59.81
Shinetsu Line	33.69	15.17	18.52
Hokuetsu Line	29.39	26.67	2.72
Average	52.89	25.87	27.01
Private roads:			
Nihon Roads	36.02	16.52	19.50
Sanyo Roads	36.81	15.50	21.31
Kwansai Road	36.09	16.06	20.03
Kiushiu Road	45.08	19.06	26.02
Average	38.25	16.53	24.41

This shows, he says, that the business of the private lines was superior to that of the state roads, with the exception of the Tokaido road.[2]

Against these arguments Colonel Osawa brought forward the military interests.[3] It is noteworthy, however, that no argument advanced for the nationalization referred to the general economic point of view. Meanwhile the war with Russia broke out—an event which was to decide this problem.

The fifth and last move for nationalization was that of

[1] "Nihon Tetsudo Ron," pp. 191-193.

[2] As to why the State road of the Tokaido shows such favorable results see p. 61 of this essay.

[3] See "Nihon Tetsudo Ron," pp. 108-121.

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roads will yield 50 million yen annually to the state exchequer, when, after 40 years, the amortization of the railroad loans has been completed. Although an addition to the state debts is not pleasant to contemplate, one need harbor no doubts, for the loan in question is a *productive* one; there will, therefore, be no burden upon the whole nation, because the accounting system used for the railroad loans will be separated from the general budget.

The fifth question again is unimportant here.

6. *Q.* After the actual nationalization, will the tariff rates be lowered, and will the present narrow gauge be replaced by the standard gauge?

A. of Minister of Communications, T. Yamagata: The administration is planning a lowering of tariff rates, but it can give no further particulars concerning the exact rates; the question of the gauge is not yet ready for discussion.

It is unfortunate that none of these important questions was satisfactorily answered. After several debates, the commission accepted the resolution for nationalization by an absolute majority.[1] In the full session of the lower house the resolution was then passed by 243 to 109 votes. According to it, 32 private railroad companies were to pass over to the government by 1911, the following being named:[2] Hokkaidotanko, Zuso, Koya, Hokuetsu, Toyokawa, Nanao, Tokushima, Ganetsu, Chuetsu, Sanyo, Sobu, Omi, Nihon, Kwansai, Kawagoe, Bisei, Kiushiu, Jobu, Nankwai, Kobu, Sangu, Tobu, Kioto, Hokkaido, Mito, Kwanan, Narita, Nishinari, Chugoku, Boso, Hankaku.

When the resolution came before the upper house, opposing voices were raised. Finally, a committee was appointed to alter the number of private railway companies included,

[1] But nobody was against the bill for the nationalization of the Soeul-Fusan R. R. in Korea.

[2] See "Meiji Kotsu Hattatsu Shi," p. 160.

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the term of nationalization, and other less important points. In full session, the new draft was passed after stormy debates by 250 to 62 votes; and immediately afterwards the resolution as amended was presented to the lower house again. This passed it on the same day, March 27th, 1906, with the 214 assenting voices of all present, the opposition not having appeared at the session. It was then promulgated as a law, no. 17, on March 17th.

According to this law, only the trunk-line railroads were to be taken over by the government.[1] Furthermore, the term of nationalization was extended to 10 years, and the number of companies destined to be nationalized lowered to 17. To help the state finances, the remaining 15 small companies were omitted from the resolution, namely the following: the Kawagoe, Tobu, Zuso, Chuetsu, Bisei, Koya, Jobu, Mito, Toyokawa, Ome, Nankwai, Kwanan, Chugoku, Hakatawan and Narita lines.

2. REASONS FOR THE NATIONALIZATION

(a) *The Political, Military and Economic Reasons*

The reasons for the nationalization which the government advanced at that time were the following:

In order that economic life should flourish, it is necessary that the railroads, which are the means of carrying on commerce on land, should be under the control and management of the state. To divide up the network of railroads between various lines is prejudicial to the general welfare; for different managements increase charges, make the traffic heavier for long distance, give rise to uneconomic transactions (such as the running of empty cars), and lead, finally, to great difficulties and additional expense, which

[1] "Tetsudo Kokuyu Shimatsu Ippan," pp. 59-65; on the entire act see *Archiv für Eisenbahnwesen*, 1907, p. 350.

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would result in increases in the rates. In pointing out the necessity for an increase in production, the government showed that to pay the interest on foreign loans alone required an annual sum of 40-70 million yen. That would mean a continual outflow of gold to other countries, so that the gold-reserve would be eaten up in from three to four years. The mercantile idea of an active balance of trade was alone considered correct. The amount of interest that had to be paid on the capital, and the railroad rates—both of which raised the costs of production—must be responsible for the fact that, in spite of the low wages paid in the interior, domestic products could not compete with foreign products. Only as a state possession could the railroads reach a point where a reduction of rates would be possible.

To my mind, the above argument does not go deep enough, because in Japan the railroads do not play nearly so large a part as does shipping in the export trade and commerce; the railroads are responsible for only such part of the cost as arises from the conveyance of goods from the places of production to the ports whence they are sent out. So-called protective policies, regulated by railroad tariffs, can be more advantageously carried out in such countries as Germany.

On the political side the government emphasized the necessity of protecting land and people from foreign influence over the railroads by nationalization. If the shares of the private railroads were already being bought up by foreigners, it would be impossible to lower the railroad rates on the ground of social welfare—by which act a so-called national protective policy was to be carried into effect.

In case of mobilization, the management of military affairs would not be carried on so well by private railroads having some foreign shareholders as by those whose shareholders were all native; and even these would be inferior to the state railroads. Moreover, the difficulty of even-

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tually nationalizing a road increases when the road is partly under foreign control.

The reason for the nationalization from a financial point of view seemed to the government perhaps the most important. The argument ran as follows: If we deal with the railroad loans apart from the general state budget, and the productiveness of the roads remains stable, as Table 2 shows, then within 35 years all the loans will have been completely paid off by the working surplus, and an addition of 50 million yen made to the exchequer.[1]

If we glance at the general financial condition we notice the peculiar fact that the salt, textile and trade taxes, which received the vote of Parliament on condition that they be repealed immediately after the war, still exist to-day, ten years after the war, and constitute a great burden upon the poorer classes of the people. Under such conditions, the railroad surplus dreamt of by the administration would be very helpful in a reorganization of the finances. And in case of the necessity of taking up foreign loans, the state railroads would be a good pledge.

The opinion that for the sake of military defence the state must own the railroads, was advanced by military circles when the first railroad was begun, and again after each war.

(*b*) What, then, is the *deeper* reason for the fact that, since the war, the demand for nationalization has repeatedly been renewed? I believe that it is to be found in the desire for expansion, which was strengthened by victory. There is no doubt that nationalization was carried through mainly on the strength of the military argument; but it is to be questioned whether, during the war with Russia, the railroads were really so deficient that their nationalization

[1] *Cf.* III Chapt. I: The answer of the Minister of Finance to the question of Oishi's in the executive committee of the lower house.

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was absolutely necessary. Despite the answer of the Minister of War to Oishi's question on this subject in the meeting of the committee of the lower house (see above), I cannot believe that the private railroads were so very defective for military ends.[1] Two facts support the military argument, namely, a strong bureaucracy within the government, and the lack of private enterprise. In ruling circles there are two opposing opinions; the one, English, is individualistic, and the other, German, is state-socialistic. Those who clung to the latter always agreed with military circles, and considered the power of the state of supreme importance.

I believe that the same opinion gave rise to the tobacco monopoly.[2] The true ground for the nationalization is, as has been said, to be found in the impulse toward expansion which arose after the war in which Japan was victorious. Mention must here, however, be made of the fact that there are unfortunately many business men in Japan who wish to enrich themselves by dishonest means. This could only work harm to the economic life as a whole. The spirit of enterprise which existed to some extent before the war always needed the support of the state, and was accustomed to profit by relations with the government.

I agree fully with what Pratt has pointed out, that "it was affirmed that the Japanese Government aimed at strate-

[1] See III Chapt. 1.

[2] Besides the currency, three state-monopolies exist: 1. The tobacco monopoly. The tobacco tax was not imposed until 1876—then repealed in 1898 and in its place a tobacco monopoly established. In 1909-10 a clear profit of 94 million dollars was obtained. 2. The salt monopoly. A salt monopoly was declared in 1905 on financial grounds. 3. The camphor monopoly, that at first was only in force in Formosa, was made to apply alike to Old Japan and Formosa in June, 1903, by the law concerning raw camphor and camphor oil. For further particulars see the financial and economic yearbook for Japan, 1913, pp. 25 and 26.

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gical rather than at economic advantages, and that the military power of the country was mainly responsible for the project." [1] As an economic reason in favor of the nationalization, there might well be advanced a lack of uniformity in handling the traffic. Some delays and difficulties frequently occurred, more especially in the case of traffic carried for comparatively long distances; but it is certain that these economic considerations were not the predominating factor.[2]

The press, in so far as it was politically and financially free—that is, not influenced by any party, as for instance "Asahi" and "Yorozu"—generally considered nationalization as nothing less than a suppression of the spirit of individual enterprise by the power of the state, and an act prejudicial to the whole nation brought about by an unrighteous victory of the minority, *i. e.* the shareholders of the private railroad companies.

We must not, I believe, take for granted the ability of the state-railroad administration to manage economically and carry on successfully an essentially greater railroad traffic; nor can we be sure that, under the control of the state the Japanese roads will continue their favorable development. The hitherto rather satisfactory results that the state has had with its control of railroads are due not to any peculiar qualification of the state for this task, but to the very good position of its lines, which from the very nature of the case would flourish even without any very skilful handling. On the Tokaido road, which is the most important state-road, the car space is fully utilized in passenger as well as freight cars, an advantage which may be traced back to the geographical position of the line.

The reasons in favor of the nationalization advanced by

[1] *Cf.* E. A. Pratt, *The case against railway nationalization*, p. 39.

[2] *Ibid.*

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the statesman, business man and the friendly press do not seem valid. One must, however, not ignore the economic element, which is of considerable weight when one considers the welfare of the nation. It must, nevertheless, be said that the arguments for nationalization which are currently found in Japan are not very convincing.

3. ACCOMPLISHMENT OF THE NATIONALIZATION

(*a*) *Formation of the Commission*

After the promulgation of the nationalization law on the 1st of June, a commission was appointed, under the leadership of the Minister of Commerce, which was to control the whole nationalization scheme. The question next arose as to whether the term of ten years fixed by the government in the nationalization law (see § 2) was not too long for the purpose of acquisition. The commission found that to put off the acquisition for even a single day would cause trouble. It, therefore, proposed to the Cabinet to have the purchase effected as rapidly as possible, for the following reasons: [1]

First, it stated, a delay in the acquisition would have a very bad effect on the whole economic life of the country; for the private railroads would make no further improvements than were necessary for the moment, and an increase in the tariff rates would follow at once. At a time when nationalization was to be expected sooner or later, no company would favor a lowering of rates; the opposite, rather, would be apt to occur, even under rigid supervision by the government. Secondly, the impending purchase would exert a harmful influence on the finances, because all sorts of improvements and additions never or only vaguely thought of before, and not even suggested to the companies by the government before nationalization was decided on,

[1] "Tetsudo Kokuyu Shimatsu Ippan," pp. 151-157.

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would suddenly be projected; for almost all the capital that might be invested was now, under the law of nationalization, supposed to yield a profit. Only one month after the decision on the question of nationalization, charters of new lines to the amount of 12.1 million yen were proposed to the government, which amount, according to the law, must carry with it an indemnity of 23.5 million yen.[1] This prejudice to the government finances would only be increased if nationalization were delayed. Thirdly, they said, there was great danger of the falling-off in the number of passengers and the amount of freight. Finally, the uncertainty in the minds of the officials and employees of the roads to be purchased as to whether they would be taken over by the state would naturally affect the manner in which they did their work.

The commission, therefore, proposed to the administration to purchase the ten most important railroads within a year. Accordingly everything necessary to the act of nationalization ought to be done at once, and above all, the purchase price, the most difficult point at issue, should be settled forthwith.

(*b*) *The Fixing of the Purchase Price and the Issue of Railroad Loans*

According to article 5 of the law, the purchase price was decided upon as follows:

[1] The "Tetsudo Kokuyu Shimatsu Ippan," pp. 153-4 shows as follows the relation of the purchasing price to the invested capital in the case of three great companies:

Name of company	Average percentage of pure surplus to the invested capital	Relation of the purchase price to every 100 yen of invested capital yen
Nihon Co.	11.98%	239.6
Sanyo Co.	10.08%	201.6
Kiushiu Co.	9.50%	190.6

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1. The average rate of net profit to the companies during the six working half-years from the second half of 1902 to the first half of 1905 is to be multiplied by the construction cost up to the day of purchase; the sum total or purchase price is to be 20 times this amount.

2. The value of the equipment which is to be used as a basis for the purchase is to be computed from its daily value in state bonds at par, and the sum total ascertained in that manner. Property which had been obtained through loan funds was to be excluded, since the government would itself assume the loan obligation.

By "profits" as mentioned above in 1, we are to understand the gross earnings of the business, from which the expenses — including the interest running on the various accounts, except the profit-and-loss account—are to be deducted. By "average rate of profit," we are to understand the sum of the profits in all the working half-years from the last half of 1902 to the first half of 1905, divided by the sum of the construction costs in the same time and multiplied by 2.

The government was of the opinion that the average net profit referred to above should hold good even with the twenty-fold purchase price. But the price established by that rule had reached over 470 million yen, as Table 2 of the Appendix shows; it was about double the original cost of the private railroads, and was more than twice the 202 million yen of capital paid in to the private railroad companies.[1] For, by a comparison (Appendix, Table 2), we see that "the nationalized companies receive from the government a compensation of 44 yen for every 23.47 yen of original cost expended — reckoned in round numbers. At first glance, this seems a rather high valuation; but as a matter

[1] "Meiji Shijunendo Tetsudo Kyoku Nenpo," appendix, pp. 22-45.

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of fact, the treasury fares very well, for it has no disbursements, and the present surpluses of the road are enough to cover the interest on the 5 per cent state-debt bonds, which are to be handed over to the shareholders." [1] On this point, therefore, the state proved very complaisant. But was the object of the nationalization really achieved when the working surplus was made to include the interest on loans?

As has already been mentioned, the government intended that through the economies of the simplified and united managements, and with the increased earnings resulting from the general improvement in traffic, the total capital debt should be paid off within 45 years, so that at the end of that period the state would have acquired something that would bring in an annual surplus of about 50 million yen. It is too early yet to prophesy when the state will be in such a happy position. In regard to the purchase price, many complaints were made by the companies selected for nationalization.[2] The Hankaku road would be injured if it were bought for a price based on the net gain for three years, for it had been newly opened, and the profits of the first two years did not show what the future would yield; it, therefore, demanded that the purchase price be paid either in cash or in marketable securities. The Kobu road pointed out that the sum of the income taxes, which had been omitted from the calculation of earnings, ought really to be included. The Boso road explained that, on account of the bad condition of business, its capital had decreased 260,000 yen, and that this sum should be included in the original costs.

There were nine roads to be purchased, according to article 5 of the law, namely: the Hokkaido-Tanko, Kobu,

[1] *Archiv für Eisenbahnwesen*, 1907, p. 353.

[2] "Tetsudo Kokuyu Shimatsu Ippan," appendix, pp. 1, 14, 30.

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Nihon, Sanyo, Kiushiu, Hokuetsu, Sobu, Kwansai and Sangu roads. Among them are the three most important ones in the country. There are eight roads not selected in article 5, but named in article 8 of the law;[1] they are the Ganetsu, Nishinari, Hokkaido, Boso, Kioto, Hankaku and Tokushima roads.

One year after the promulgation of the law, the 17 railroads mentioned were bought by the state. Of all the questions that came up concerning the purchase price, perhaps the most difficult was that of computing the original cost of a working year, mentioned in division 2 of article 1. Some said that this meant the actual amount used in a working year; but the government considered that it was to be interpreted as the original outlays which the lines had made in actual operation. Consequently, the expenses of such lines as had opened in the middle of the year had to be calculated according to the number of days or months that they had actually been in running order.[2]

The dates of the nationalization and the purchase prices of the respective companies are shown in Table 3 of the Appendix. From this it can be seen how quickly the execution of the plan proceeded and what relation the purchase price bore to the original capital.

Emphasis must here be laid upon the fact that the government used no special cash funds to effect the nationalization; for the shares of the private railroad companies were merely exchanged for 5 per cent state-debt securities.[3]

[1] § 8: If the company has no line completed within the 3 years from the 2nd half of 1902 to the end of the 1st half of 1905 or if the amount estimated by § 5, article 1, no. 1, was less than the invested capital, the Government agreed to pay the sum of invested capital for the former and the amount estimated by § 5, article 1, no. 1 for the latter (*Archiv für Eisenbahnwesen*, 1907, p. 355).

[2] *Cf.* "Tetsudo Kokuyu Shimatsu Ippan," pp. 813-818.

[3] *Archiv für Eisenbahnwesen*, 1907, p. 351.

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There was no opposition to such a transaction. The government did not have to deal with the individual shareholders in the exchange, nor was the consent of the corporations in annual or special meetings necessary; the consent to the exchange was really an obligation imposed on the shareholders by law.[1]

[1] According to § 12 of the Nationalization law: The purchase price shall be paid off by state bonds at 5% interest.

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CHAPTER IV

State Finances and the Nationalization of Railroads

I. Historical Survey of the Relation of Railroad Finance to the General Administration of Revenues

During the recent war, Japan has raised herself to the status of a world power. In consequence, the various political, social and financial demands have become far greater than before, and the exchequer has had to bear a heavier burden. In 1903, even before the Russo-Japanese war, the total expenditures amounted to about 249 million yen—of which 169 were in the regular or ordinary budget and 80 in the extraordinary budget. In 1907, after the war, the total expenditures were 628 million yen, of which 398 million yen were ordinary and 230 extraordinary expenses. In 1908 the total rose to the amount of 636 million yen, the maximum up to that time.[1]

The most important causes of this growth in state expenditures were the increase of the army and the navy, the management of newly-acquired territories (Korea and Manchuria), and the cost of nationalizing the railroads.

The following table shows the receipts and expenditures of the state roads before and after the war:[2]

[1] *Cf. Finanzielles und wirtschaftliches Jahrbuch für Japan*, 1911, p. 13.

[2] "Meiji Shijuyonendo Tetsudo Tokei Zuhyo," pp. 436-437.

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Fiscal year	Receipts yen	Expenditures yen	Surplus yen
1903.....	19,361,742	9,035,428	10,326,314
1907.....	69,775,161	35,751,943	34,023,218
1908.....	79,821,583	42,859,637	36,961,946

The receipts and expenditures were during the year after the war three or four times as much as in the year before the war. This increase in the surplus had no favorable effect on the ever-growing state budget, despite the falling off of subsidies; for it was to be used primarily for paying interest on the new loans, and then for additions and improvements on the railroads, so that no residue was left. The capital invested in these additions and improvements on the roads was as follows, before and after the war:[1]

1904.....	5,620,073 yen
1907.....	22,287,662 "
1908.....	32,668,926 "

The figures show about a six-fold increase in the amount of annual requirements after the war. The government issued loans for the nationalized railroads to the amount of over 470 million yen. Under such conditions, it was impossible to raise the question which was discussed with particular interest after the nationalization in Prussia, namely: to what use should the operating surplus of the railroads be put. Before the nationalization, the net earnings of the railroads—in Japan about 50 million yen annually—were expended for other general administrative purposes, and the funds for additions and improvements on the railroads were advanced from the general exchequer.[2] So, since the nationalization, there are no difficulties raised by the fluctuation of net profits, as was often the case in Prussia after

[1] *Cf.* "Meiji Zaisei Shikou," p. 281.

[2] As to its details see Table 2.

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the adoption of the state railroad system, and is still the case there.

It was after the war with China (1894-95) that the many railroad loans for construction and betterments were issued by the state railroads on their own account. Because of this fact, the policy of the Japanese state roads became identical with that of the present Prussian roads. But a year after nationalization this system was altered by having the railroad administration completely divorced from the general administration. Let us look more closely at the causes and results of this step.

2. CONCEPTION AND EFFECTS OF THE IDEA OF KEEPING THE RAILROAD ACCOUNTS INDEPENDENT OF THE GENERAL STATE BUDGET

As early as 1887 the state railroad accounts had been separated from the general state budget by the law requiring special railroad accounting. This law was modified in April, 1906, immediately after nationalization by law number 37, providing that the money which had been invested, and should in the future be invested, in railroad enterprises was to be regarded as capital.[1] Indeed, it was to be regarded as an obligation of the railroad administration, which was to be discharged, however, within the limits of the general state budget. Of the operating income, which had been transferred to the general budget, that sum which remained after deducting interest was to be considered as reducing the state's railroad debts.[2] According to this

[1] According to §§ 1 and 4 of Law No. 20 of 18th March 1890 the earnings from operation of railroads were to be credited to the general administration, whereas the sum of capital needed for the construction and betterments of railroads were to be advanced from the general budget, and the working surplus of the railroads was to be transferred to the geneal budget.

[2] Law no. 6 of 20th Marz 1906.

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provision, however, the funds for additions and improvements on the roads were to be taken from the general exchequer; and the net earnings (or net operating income) were to be diverted from it and used, first to pay interest, and then to redeem the railroad debts. The keeping of the railroads' books is, therefore, conducted in a separate account. In reality, however, everything remains the same as before, for the funds destined for the railroad management are always at the disposal of the general exchequer, if needed. It so happens that each time the accounts are balanced, the railroad administration, because of the demands of the other administrative departments, has less funds at its disposal. And in each financial reform the railroad funds which served for productive purposes were as much cut down as the unprofitable expenses. As a result, the second Katsura Cabinet carried through in March, 1909, a new railroad-accounting law that was in keeping with its principle of administration.[1] The essential contents of the law are as follows:

1. In order that the national railroad enterprises may be successfully carried on, the railroad accounts will be separated from the general state budget. The capital of the railroads will consist of the funds invested, and to be invested, in the railroads and in railroad stocks. The annual expenses shall be defrayed out of the annual revenues.

2. The necessary funds for additions and improvements will be provided by the operating income. If this does not suffice, a loan or some other form of liability will be contracted, which is to be included in the railroad accounts. The total amount of loans and liabilities may not exceed that allowed in the estimate for additions and improvements.

[1] Law no. 6 of 20th Marz 1909.

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3. In order to regulate or to discharge the loans and other liabilities incurred for the purposes of managing the railroads, the government may issue a new loan, or a call-loan, on the state administration, which the railroad administration must enter on its debit account.

4. The loans that are issued for the state roads—including those contracted for their regulation or amortization, those loans or other liabilities contracted or to be contracted on the grounds mentioned above in 2 and 3, and those loans or other liabilities contracted according to the law of nationalization—are, if not yet paid off, to be charged to the railroad debit account. The sums needed for the payment of interest and sinking fund are to be transferred from the railroad account to the books of the special fund for amortizing state debts.

8. After subtracting the amount destined by law for the reserve fund, the rest is transferred to the capital account. By "gain" is to be understood that amount by which the annual receipts exceed the annual expenditures.

The new law is certainly a step in advance. For, in the first place, the funds for additions and improvements on the roads are treated without regard to the general financial situation; and secondly, the head of the railroad administration can act according to his own judgment. Upon closer examination, however, we discover that this new arrangement is still insufficient completely to carry through the independence of the railroad accounting-system. For if the provision of funds for additions and improvements is made easier through the legal clauses, it is still dependent on general fiscal conditions. Moreover, the people are unevenly burdened by this new order of things. A weekly paper expressed itself on the subject in this manner:[1] 1. The sums of money from the

[1] "Toyo Keizai Shinshi," no. 529, p. 65167 (15 July 1910).

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general revenues (*i. e.* customs-duties, *etc.*) which have been invested in railroads,[1] are not included in those amounts which are to be transferred to the railroad accounts. 2. The sum of the general state taxes by which the railroad loans were paid off[2] were also omitted from the railroad accounts. 3. There is no special security for the loans which shall guarantee a discharge of the debts in the case of former construction as well as of additions; for the railroad loans are handled in the same way as those issued for the purposes of the general state administration. The fact was emphasized that the roads which had been built with the help of increased imports (for instance, the Nakasendo road, built with the aid of taxes, and those constructed through the industrial loan) were to a certain extent used free of charge, for the sums needed to pay the interest and sinking fund on the above loans were provided out of the general state income. Not only is this unauthorized, but the present unjust system of taxation lifts the burden from the stronger shoulders—for the railroads are not used largely by the more prosperous taxpayers. On the other hand, no progress has been made as regards the building of additions and improvements, the reasons for this being that the railroad loans are not differentiated from those for general purposes, and that the issue of railroad loans is not in harmony with the policy of the government.[3] As a result, the state railroad system has always had to accept the fine-sounding name of the separate accounting system.

[1] It is estimated at 108,272,289 yen at the end of March 1908.

[2] It is estimated at 27,107,550 yen at the end of March 1908.

(2) and (3) are derived from the special reports of R. R. Councilor, Hirayama).

[3] The 2nd Katsura ministry has declared that fiscal affairs should be organized according to the new principles of the non-increase of State debts.

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It is, however, not quite clear what is to be understood by the independence of the railroad accounting-system. The sums which, during a fiscal year, are to be expended for government purposes, ought to be covered by the receipts of the same year — the general accounting law of Japan resting on this basis. The receipt and expenditure of funds, however, proceed in the state department irrespective of whether the expenses are balanced by the receipts. There is some justification, when a definite stage of economic development has not yet been reached, for aiming to have those expenses needed for the support of a certain enterprise covered by the corresponding receipts. But how can a state enterprise, run under this separate account system, be entirely free from the influence of the other administrative branches? Although the railroad accounting system has been made by law distinct from the other branches of the administration, this separate existence is not uninfluenced by the general budget. If the state of the general exchequer is bad, the separated accounts are also weak and insecure. We must, on the other hand, concede that the existence of the independent accounting system does exert some beneficial effect on particular enterprises, and that it is able, to some extent, to influence their favorable development.

At all events, the question of how to apply the operating income is the most important one to be considered in studying the connection between the state railroads and the general state administration, whether or not we are dealing with a separate accounting. When the railroad guarantee law of March 29, 1882, was promulgated in Prussia, the government at first proposed to free the exchequer from the uncertain influence of the railroad surplus; later on, however, it was found necessary to protect the railroads from the ever-increasing demands made upon their oper-

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ating income by the administration at large.[1] The separate accounting system differs from the general accounting system in that funds for additions and improvements are to be provided either through a working surplus or by a credit law. If the surplus which is to be thus invested is too small, and the larger part of the capital has to be provided by loans or other forms of credit, the separate accounting system is of no value in the support of the railroads. This is the case in Japan, where each separate railroad accounting system remains ineffective.

It must now be made clear just what is meant by the operating surplus, or what in the accounts prescribed by the Interstate Commerce Commission in the United States is called the operating income, as distinguished from the operating revenues. Seki, professor in the High School of Commerce in Tokio, says that the operating surplus is a tax rather than an entrepreneur's profit, for on the whole it is based on something disadvantageous to the consumer, and the surplus of the state railroads is less injurious to the public welfare than that of the private roads. If, on the one hand, the public pays somewhat higher rates for transportation, the taxes are, at the same time, lower. Therefore railroad rates should be fixed not only with moderation, but in view of the general financial situation. In short, the state railroad surplus (or what in the American parlance is called the net corporate income) theoretically resembles the revenue from the salt monopoly.[2]

It is probable that Seki took this argument from Professor Cohn.[3] To my mind it is open to criticism, for two

[1] Kirchhoff, *Eisenbahn- und Staatsfinanzen*, p. 26.

[2] "Nihon Tetsudo Ron," pp. 616-619.

[3] Cohn, *Geschichte des Verkehrswesen*, p. 515: "Darüber wird man ohne Mühe sich verständigen können, dass die Eisenbahnüberschüsse

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reasons. First, the state railroad surplus has not the characteristics of a tax; a tax is imposed generally through a one-sided act of the state without any especial equivalent in return, while just the contrary is true of the railroad operating surplus. This definition of a tax is justified, so far as I know, by the usual practice of economists as well as by legislatures. If this is true, then the railroad surplus formally should of course not be considered an indirect tax. Secondly, if the surplus is to be regarded as a tax, the funds needed for the interest on and amortization of the railroad debt might just as well be raised by general taxation. Regarded from the state-socialistic point of view, the state railroad debts might, of course, be partially or wholly redeemed by money from the general state exchequer. But there is no such administrative principle in existence today.[1] No one has as yet contradicted Weichs-Glohn when he says: "So long as there is a penny to be gotten from the latter (*i. e.* the proceeds of the systems of transportation), taxes ought not to be resorted to."[2] Seki will perhaps not go so far as to argue this fundamental point with Weichs-Glohn, even as respects the above taxation contention by which the investment of the railroad surplus in general state enterprises seems to be justified, and the private-economic principle of the state railroad rate policy is conceded to be correct. This point, which Seki has in mind in his taxation argument, so far as it concerns the question

der Staatsverwaltungen gleich den Uberschüssen der Reichspost, gleich der Uberschüssen der städtischen Gaswerke und Wasserwerke als eine Form indirekter Besteurung aufgefasst werden, und zwar einer Besteurung teils der Konsumtion teils der Produktion, je nach den Zwecken, für welche man sich des Wassers und Gases, der Post und der Eisenbahn bedient."

[1] See Seligman, *Principles of Economics*, p. 581.

[2] Weichs-Glohn, *Verkehrsmittel*, p. 134.

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of government *versus* private monopoly,[1] is naturally free from objection. The point we desire to make is that it is expedient to regard the railroad operating surplus as part of the regular income from state enterprise. The surplus, of course, comes from the earnings of operation, which essentially depend upon the railroad rates and the economy with which the business is conducted. This tariff of rates can be fixed according to the private-economic principle of profit, the socio-economic principle of fees, or the principle of gratuitous service. Even if it is founded on the private-economic basis, the net income is not, as has been said, a tax, but a sort of state business income.[2] There is really no occasion for converting the surplus of the state railroads into a form of taxation in order to justify its investment for purposes of general administration. Whether the state railroads are run on an individualistic or socio-economic basis, whether the surplus is used for railroad purposes only, or for the needs of the administration at large, does not seem to me to be a question of fundamental difference, but only of the particular policy for the time being. I do not desire to express a decided opinion as to whether the means of communication can be satisfactorily managed by public officials. But if the railroad surplus is to be utilized only for the railroad administration, it is of course clear that the railroad liabilities must *per contra* figure in the railroad accounts. Otherwise a fundamental principle of the science of finance will be violated, namely, that of equality of bur-

[1] *Cf.* Seligman, *Principles of Economics*, p. 617: "When the political objections to a high indirect tax, however, seem considerable, or when the chances of private competition are increasingly remote, it may be wise to secure the desired revenue by fiscal monopoly."

[2] In this case Prof. Seligman employs the term "private price," which is perhaps equivalent to an indirect tax. (*Essays in Taxation*, p. 426). Prof. Clark seems to be of the same opinion. See *The Problem of Monopoly*, p. 109.

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den, or equality in ability to bear our burden. Since Japan has decided, as to the state railroad system, that the surpluses shall go to the railroads themselves, and that the liabilities of the railroads shall all be charged in the same account, there is a prospect of the railroad administration becoming independent of the general government business, and becoming profitable in itself. In reality, the statistics show that of the railroad surplus there remains an annual average sum of 40 million yen; and, after deducting the amounts needed for interest, only about ten million remain (in the statement for 1912-13 fifteen millions)—the total application of which to the railroads does not realize the fond hopes entertained at the time of the nationalization. The present separate railroad accounting system has, therefore, very little significance. It is in need of a stringent reform.

Still another problem of the state railroad system remains, that of the construction of unprofitable lines.[1] The answer to this question again touches on the raising of funds for construction and improvement of the railroads.

3. THE RAISING OF FUNDS FOR RAILROAD CONSTRUCTION AND BETTERMENTS

The question as to whether the construction and improvement of railroads should be financed through loans or through other credit devices, or paid out of earnings, is answered differently in the various countries that have state systems. The most prominent economists agree that construction and improvement costs should be defrayed out of an increase of capital rather than out of earnings, for the net earnings are usually too small for this purpose. In

[1] *Cf.* III Chapt. 1. The same question was brought by Oishi before the executive committee of the Lower house. It was however, not answered.

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railroads which are solidly built from the start, and which are constructed in a populous country, the real balance-sheet represents operations rather than property or capital.[1] For in such cases the control exercised is so strict that the property can always be maintained intact in its original condition. This conception of increase of property investment, as it is called in the Interstate Commerce Commission reports, is not so easy to grasp as it seems. For instance, it is no simple matter to decide whether "excavations" constitute an increase of property investment. It is for this reason that the Germans speak of "productive capital" rather than of increase of property investment.[2] On the other hand, not everything that is raised by loans can be regarded as productive capital. New cars, which may be considered "productive capital," may be paid for out of earnings; while, on the other hand, a new stretch of track, financed by stock or bonds, cannot always be considered productive. In this category, for instance, belong the unprofitable extensions or so-called "feeders" the operating revenues of which do not generally cover their operating expenses. In the case of such great enterprises as railroads, the temporary condition of the property and the investment must be made clear, and the outlays for "productive purposes" distinguished from the others.

[1] *Cf.* Kirchhoff, *Eisenbahn und Staatsfinanzen*, p. 8 (original): "Die Eisenbahnunternehmungen stellen im Gegensatz zu anderen gewerblichen Unternehmungen nicht eine Vermögensbilanz, sondern eine Betriebsbilanz auf. Da der Vermögenswert eines Eisenbahnunternehmens als solcher fortgesetzt unversehrt erhalten wird, wird beiden Eisenbahnen am Schlusse eines jeden Geschäftsjahres die Rentabilität nach dem fortgeschriebenen Anlagekapital einerseits und den im Eisenbahnbetriebe erzielten Uberschuss andererseits festgestellt."

[2] Kirchhoff, *Eisenbahnen und Staatsfinanzen*, p. 9. See also in general for the difficulties connected with the construction accounts Ripley, *Railroads, Finance and Organization*, 1915, chap. vii.

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In Japan the government from the first desired to secure the funds for construction from loans. Since, however, the issue of these depended on the state of the domestic and foreign exchanges, loans for railroad construction alone have not been issued since 1896. The issue of railroad loans conflicts with the recent policy of the government, according to which funds for the building of new lines must be taken, with the exception of the operating surplus, from the deposit account in the Ministry of Finance.[1] Meanwhile, in 1912, Prince Matsukata had advised the government to take the funds for additions and improvements on the roads from the operating surplus only. His advice, however, was not followed.

Under these conditions, the sums which the management of the deposit account had to place at the disposal of the railroads to satisfy their needs continued to grow. The "Tokio Asahi," a newspaper which had made a name for itself during the discussion of the railroad question, wrote on the above subject as follows, on October 16, 1913: "The cost of building and improving the state road is said to amount to 162,870,000 yen for the eleven years from 1913-14 to 1923-24; and of this amount, 95,460,000 yen is to be put into new investments." Despite this, however, all funds except the operating surplus were made up by deposits, which have not increased as much as the government expected. The government has recently decided to secure the funds for building and improvements on the railroads (except the net profit) from foreign loans in annual amounts of about 40 million yen. A further discussion of the question of railroad loans will be in place here.

[1] The Ministry of Finance accepts deposits from the general public, paying interest therefore. This practice gives the government a variable amount of funds available for such uses as it wishes. The deposits are redeemable on demand.

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(a) *Railroad Loans and Their Amortization*

Whether the general expenses of the state should be covered by taxes or loans, is a question that plays an important part in the science of finance. Each of the plans has its own peculiar advantages. But it is not so easy to decide whether the loans shall sooner or later be financed by taxes or by other revenues. On the one hand, it is said that as the state loans must be paid off like private debts, it is in the interest of the future loans to amortize those already outstanding. On the other hand, it is declared that the payment of the debt is not necessary, since it may be regarded as a perpetual interest-bearing liability. Still others say that the loans should be differentiated as regards their purpose—as to whether they are productive or not. For otherwise the state will eventually sink under the ever-growing burden of interest. Most economists agree on this last point, while opinions differ as to whether the amortization of loans for productive purposes like railroads is necessary. According to Weichs-Glohn, a plan of amortization or sinking-fund scheme should be provided for even such productive loans, for the following reasons:[1] First, because of the changes in economic conditions brought about by new inventions and by competition; next because of the principle that one generation should not bequeath its burden of debt undiminished to the next; finally, because of the reduction of the sums available for interest. As opposed to this, Herman Kirchhoff says:[2] "The merchant credits his property with its increased value and deducts its decreased value; what remains is his profit. As was mentioned above, the railroads have really no property balance-sheet, but only an operating balance-sheet. All the prop-

[1] Weichs-Glohn, *Verkehrsmittel*, pp. 129-30.

[2] Kirchhoff, *Eisenbahnen und Staatsfinanzen*, pp. 16-18.

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erty of the state roads, movable as well as immovable, is not only maintained and renewed by the operating income, but at the same time considerably improved. The private railroad companies, which were built through the issue of shares, knew of no amortization or sinking of debts; for the property of those railroad enterprises was kept intact by the traffic earnings, and therefore required no further settlement." Kirchhoff rejects some of the above arguments in the following words:[1] "The increased need of providing for a speedy amortization of the state railroad debt is due chiefly to the risks which inhere in railroad enterprises." But Kirchhoff did not decide the question of loans contracted for unprofitable lines.

In most countries having a state railroad system, there is usually more or less of an established plan of amortization or sinking of railroad debts. At all events, it is wise to prepare for a possible paying-off of these loans, for unprofitable lines are always to be found in a system of state railroads, and the productive power of the roads as a whole is then diminished. In most of the state road administrations in Germany, namely, the Prusso-Hessian association, the Bavarian and the Wuertemberg roads, such a plan for amortization has been established.

Although the Japanese government has carried on a so-called railroad separate account for some time, no plan for a separate payment of railroad loans has been considered; indeed, their amortization is always connected with that of the state debts in general. We are therefore unable to speak of a plan to amortize only the railroad debts.

(*b*) *Plan for Amortizing State Debts*

In 1878 Okuma, who was then minister of finance, and is now (1915) prime minister, for the first time issued a

[1] *Op. cit.*, p. 19.

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law for the amortization of state debts, and planned the establishment, with the permission of the prime minister, of an amortization fund in the state budget.[1] In June of the following year the minister of finance changed this law in some details, with a view of effecting a large reduction of the debt. This law fixed an annual sum of 20 million yen from 1878-1885, Y25 mill. from 1886-1890, and again Y20 mill. from 1901-1904, to be used for amortization and the payment of interest, which sums were to be taken from the current receipts; so that all state debts should be discharged by 1905.

But meanwhile the financial conditions changed. On the one hand, the state debts were increased by the negotiation of railroad and other loans; and on the other hand, the state exchequer was able to do more toward discharging these debts. As a result, Minister of Finance Matsukata somewhat modified his amortization plan. It was now decided to take from the running expenses about 20 million yen annually from 1886-1889, about 23 million from 1890-1905, and from 1906-1919 so to continue amortizing with certain definite amounts that in 1920 all the state debts should be discharged. The war with China, breaking out in 1894, and calling for large war loans, seriously affected Japanese finances. The plan for paying interest on and discharging these loans was, however, adhered to until the war with Russia. Through this war (1904-5) the loans of the country reached a total amount of about 2,100,000,000 yen.[2] In order to insure the payment of this enormous sum a law for the establishment of a sinking fund was promulgated in March, 1906, the most important provisions of which were as follows:[3]

[1] *Cf.* "Meiji Zaisei Shikou," p. 327.

[2] *Cf. Finanzielles und wirtschaftliches Jahrbuch für Japan*, 1911-12, pp. 41-42.

[3] *Cf. Finanzielles und wirtschaftliches Jahrbuch für Japan*, 1911-12, pp. 41-42.

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"1. The fund for amortizing debts (sinking fund) shall be kept apart from the general exchequer. 2. The amounts to be paid into the fund shall be provided each year from the general exchequer, but this annual amount may not be less than 110,000,000 yen. 3. The fund may consist of uncoined gold or silver, or of bonds, and may be invested profitably and safely. 4. In case it seems wiser, the government may, for the purpose of converting the loans, take up some at a low rate of interest, or buy or redeem securities at rates not less than par. The total amount of state debt covered during 1910 by the redemption of the above loans and through the sums which, according to the plan, were to be transferred from the general exchequer to the the sinking fund, was 523,000,000 yen, of which the loans issued for the nationalization of the private railroads amounted to 3,296,000 yen.

The total amount of railroad loans paid off as yet is not known exactly. On the basis of a special investigation by a government councilor who was interested in the commercial statements of the state railroads (for there is no public report on the subject), it amounted by the end of the fiscal year 1911, as will be shown below, to about 185,000,000 yen, from which the amount coming out of the operating surplus, and used for additions and improvements, must be deducted. This sum can also not be clearly inferred from the official reports:

1	2	3	4	5	6
Fiscal Year	Invested Capital	Entire Railroad Debts	Railroad Debts Consisting of Loans Alone	Railroad Debts Outside of Loans	Amount Redeemed
	yen	yen	yen	yen	yen
1909	784,863,769.000	625,474,942.000	591,269,750.000	34,205,192.000	159,388,827.000
1910	823,196,507.000	656,772,752.640	598,167,560.640	58,605,192.000	167,623,754.360
1911	872,229,998.000	687,150,222.420	628,645,030.420	58,505,192.000	185,079,775.580
1912	.....	672,845,066.670	618,362,762.170	54,482,304.500	.....

A glance at the above figures shows at once the relation

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of the remaining railroad debt to the original capital invested—about 78 per cent. At the end of 1906 the Prussian state railroad capital liability was about 30 per cent of the sum invested without allowance for transfers.[1] We see how eagerly the Prussian state railroad administration strives to discharge its debts. It seems to us to be a serious mistake that no plan for the separate amortization of the railroad debt has been worked out in Japan. Even in Prussia, where the railroad accounts are not kept independently of the general state accounts, the special methods for the amortization of the railroad debt have, since the completion of the great nationalization begun in 1879 (1882), always been carried out as planned.[2]

An important factor in such large enterprises as railroads is the necessity of always keeping in mind the original capital and its productivity, as well as the need of preventing depreciation.

In the next place, the amount of capital must be ascertained by accurate statistics, by adding those costs which have resulted in an addition to the property, whether they have been secured through loans (Extraordinarium) or

[1] According to the *Geschäftliche Nachrichten* (1911) *der vereinigten preussischen u. hessischen Staatseisenbahnen* (Teil 1: Betriebsergebnisse), p. 29:

	Capital Invested in Railroads in round millions of dollars	State Railroad Debts in round millions of dollars
1884.....	943	914
1894.....	1671	1344
1906.....	2281	678

[2] By the Law of 8th March 1897.

(a) ⅗ of the entire amount of R. R. debts.

(b) 1.15% of the entire capital invested or, 1.7% of the R. R. debts should be paid off annually out of earnings. By this law the influence of the Law of 27th March 1882 concerning the transfer of the R. R. surplus was really put aside. (*Cf. Geschäftl. Nachrichten der ver. preuss. u. hess. Staatseisenbahnen*, 1911, Teil I. p. 28).

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through earnings (Ordinarium). Causes of decreasing productivity must also be looked for, as, for instance, the construction of unprofitable lines, for the amortization of whose capital a definite plan is necessary. This point gives rise to the chief difficulty of the railroad business. As Weichs-Glohn says,[1] the economic attributes of the modern means of transportation are dependent on their particular technical arrangement. Careful statistics are needed in order to know whether the assets have remained the same. For this purpose an accounting as well as an actual balance-sheet is needed in addition to a sinking-fund plan. In Japan, however, no rules to accomplish this have as yet been established.

4. PROFITABLENESS

As Tables 2 and 3 show, the Japanese state railroads earn an average profit of about 6 per cent, as compared with about 9 per cent in the case of the private roads. Why are the state roads less profitable than the private roads, despite the fact that the former have a better operating ratio? In our opinion, it is because the private railroad companies defray those expenses which really belong to the capital account out of earnings. The daily receipts on the state-road mileage are continually growing (see Table 2, column 9), and seem not as yet to have reached their maximum. But, in consideration of the high rate of interest required by the capital invested, this must not be judged too favorably. On the principle that the capital account is to be completely differentiated from the operating account, all permanent-construction costs must naturally be defrayed by the former.[2] It is, however, a fortunate state of affairs when the

[1] Weichs-Glohn, *Verkehrsmittel*, p. 63.

[2] *Cf.* Kirchhoff, *Eisenbahnen und Staatsfinanzen*, p. 38: "Bei der systematischen Neuordnung der preus. Eisenbahnfinanzen wird man

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high costs for productive purposes can be met out of earnings, as is the case with the Prussian state railroads.

The profitableness of the Japanese state railroads is somewhat less than that of the Prussian where the net earnings yield sufficient to pay about 9 per cent on the existing railroad debt, and 7.2 per cent on the original capital.[1] In the fiscal year 1911-12 the operating surplus of the Japanese state railroads amounted to about 54,000,000 yen, which is about 6 per cent of the original capital of about 892,000,000 yen;[2] so that when the interest on railroad debts is deducted, about 15,000,000 yet remain.

Whether or not the profitableness of the Japanese state railroads will increase depends chiefly on whether the lines whose construction has been or will be planned will be more or less profitable — on the assumption, of course, that no crises will arise and that railroad policies will remain unchanged.

When the construction of the main lines in Japan is practically completed, when most of the large cities are connected, the profits will not grow in the same ratio as they do to-day. It is probable that more of the so-called "feeders" will be built in sparsely populated districts, with small traffic; and these will naturally keep down the net earnings.

As was said in the meeting of the Normal-Gauge Construction Commission, Japan must build in the interior at least 10,000 miles more of track—that is, about 1½ times the existing normal system; for which, experience shows us, about 1,170,000,000 yen will be needed. With such

nicht umhin können, hinsichtlich der Veranschlagung und Verrechnungs der Eisenbahnen und Ausgaben zwischen der laufenden Verwaltung und der Neubauverwaltung streng zu unterscheiden."

[1] See *Das deutsche Eisenbahnwesen der Gegenwart*, vol. ii, chap. xxxii, p. 23.

[2] See Table 2.

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an enormous outlay, how can the net earnings be expected to be as high as at present? If the state railroads are to be operated on the principle of fees, the question arises as to how any money can remain for the construction of unprofitable lines when the ever-growing expenses of the general administration already constitute so great a burden upon Japanese finances. I believe that the prospect for the Japanese railroads in the near future is a gloomy one, and that a skilful railroad policy is much needed.

5. VARIOUS AUXILIARY FUNDS

(*a*) *Clearance Fund*

This fund is for the purpose of helping to lessen the fluctuation of profits in certain periods. In the Prussian state railroad administration such a fund was established by the law of March 3d, 1903. Its effect in relation to the general revenues is clearly explained by Kirchhoff.[1] Unfortunately, no such fund has as yet been organized in Japan.

(*b*) *Reserve Fund*

Since Japan, as was stated before, is a volcanic country, and since this inconvenience threatens the railroads, a reserve fund was formed by law no. 6 of March 20th, 1909, according to which a half-million yen are annually to be taken from the operating surplus and put into a reserve fund, which exists as a separate account in addition to the capital and operating accounts. This reserve account puts down to its credit an annual sum of not more than 10 per cent of the net profits, and charges itself with such amounts as are taken from it to cover deficiencies in the income of the other two accounts, due to emergencies, natural phenomena and other unforeseen occurrences.[2]

[1] See Kirchhoff, *Eisenbahnen und Staatsfinanzen*, p. 31.

[2] *Cf. Finanzielles u. wirtschaftl. Jahrbuch für Japan*, 1911, p. 27.

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(c) *Negative Reserve Fund*

A somewhat smaller sum than that provided for by Parliament is placed at the disposal of the individual managers working under the chief of the railroad administration. This abridgment, resolved upon by the head of the administration, is regarded as a negative reserve fund for unexpected contingencies. This custom has also existed in the state accounting system of Japan for a long time.

(d) *Fund for the Renewal of Rails*

This very important fund, whose purpose is to keep the rails in their original good condition, has not as yet been established by the Japanese railroad administration.

From what has been said, it may be seen that the formation of various auxiliary funds, which have been widely and successfully attempted in other countries that have the state-railroad system, has not proceeded very far in Japan.

6. CRITICISM

Up to the present time the financial results of the nationalization of the railroads, as is evident from all that has been said, have not been unfavorable, inasmuch as the capital invested in them has always earned about 5–6 per cent. There is one condition, however, which has remained unchanged ever since the railroads began to be operated, and which has exerted an unfavorable influence upon the railroad policy—namely, the difficulty of getting money. The vacillation in Japan's railroad policy, whereby state and private operation were alternately advocated, was always more or less bound up with the difficulty of obtaining money. The question now arises —why was it, and is it, so difficult to secure the large sums of money necessary for the operation of such profitable enterprises as the railroads? In the first few years

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the importance of the railroads was not appreciated by vast numbers of people; consequently nobody wanted to invest money in them. Finally, the government itself was obliged to take the initiative, if the building of a railroad was interfered with by the difficulty of obtaining capital. In the case of private railroads these conditions, from 1896 to 1906, were somewhat more favorable, since the population had by that time become more familiar with railroads. In the present era of the railroads the state of affairs has again changed somewhat. In Japan, as in other civilized lands, certain rapidly-increasing unproductive expenses are beginning to make heavy demands upon the national finances, and this adds to the difficulty of borrowing money for building railroads.

If the building of unprofitable lines has come to be regarded as an unavoidable consequence of the nationalization of the railroads, the question arises whether the net earnings of the railroads are really sufficient for building purposes. As Table 2 indicates, the surplus or net earnings are so small that, after deducting from 10 to 18 million yen for the building of new lines and the improvement of existing lines, there is little left for other purposes. The deficits, ever since the nationalization, have been covered either out of the public deposits, or else out of the National Fund for the Adjustment of Debts, since the borrowing of money for railroad purposes is against the financial policy of the government. The principle of defraying the cost of building railroads by means of loans has always been advocated, but never carried out. On the other hand, the deposits in the Ministry of Finances, which have always been used for the defrayal of expenses brought about by the construction and improvement of railroads, have diminished.

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How, then, should the railroads be extended and improved, if the object of the nationalization is to be achieved?

The most recent plan of the government (worked out on the basis of an investigation made by the Technical Division of the Railroad Office at Tokio) is to lay aside annually for the coming seven years a sum of 50 million yen (thus 350 million yen all told) for the building and improvement of railroads. The estimated earnings of the railroads, annually amounting to about 19.6 million yen, are to provide the capital, and deficits are to be covered by means of loans. The borrowing of money to the extent of about 320 million yen (perhaps more) will become necessary according to this plan. The only question is, whether the earnings of the railroads will be sufficient, under such circumstances, for the payment of interest and amortization.[1]

In the year 1913 a new factor entered into consideration, which must be looked upon as a direct proof of how severely the government is handicapped by the difficulty of obtaining money for the building and improvement of railroads. This was the concession which the government granted for the construction of the Yosan branch-line (Iyo-Sanuki), which according to the laws regarding the building of railroads had come to be looked upon, no longer as a branch line, but as a main line. The government had hitherto persistently refused to grant this concession. If the government in this case permitted private operation upon a main line, it surely signified a change in the previous railroad policy, even if the organizers of the company were members of the governmental

[1] *Cf.* the reports of the newspapers "Tokio Asahi" (November 4, 1913), and "Yorozu Chioho" (November 7, 1913).

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party "Seiyukwai" at that time in power. The concession was granted, in anticipation of subsequent nationalization, on condition that the building should be carried out in accordance with the normal regulations governing the building of main lines. The building of railroads by private companies and the subsequent purchase of them by the government, in our opinion, seriously injures the national finances of a country, as well as its industrial development. In view of this fact Professor Kambe of the University of Kioto proposed that a large company be created, to which the operation of the previous state railroads should also be entrusted.[1] But it is not clear whether Kambe means by "entrust" to lease the state railroads to the company, as was formerly done in Italy. Regarding one point, however, everybody agrees —that from an economic standpoint the maintenance of the state railroad system nowadays constitutes a very difficult problem.

For the answer to the question whether the state railroad system is to be maintained at all, the military argument and the improvement argument constitute the deciding factors.

It is, however, impossible to-day to give a correct estimate of the influence of the state railroads upon the general administration of the revenues. Negatively, however, it may be said that heretofore the effect has on the whole not been a very good one, and that at present there is no prospect of such surpluses as were once counted on. Even the expansion and improvement of the roads are not expected now to exceed what they were in the time of the private roads. Those who understand the problem raise the question as to whether the entire state railroad system now in existence

[1] *Cf.* "Nihon Keizai Shinshi," No. 10, of Feb. 18th, 1910.

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needs to be changed. This question we shall consider later. But, at all events, it is necessary under present conditions to take measures to meet the demands for expansion and improvements on the roads. Above all comes the necessity of planning a special sinking fund for the railroad debts, especially the capital debts of the unprofitable lines, and of procuring funds for construction and improvement of the railroads through domestic or foreign loans. And, finally, the difference between the so-called "operating accounts" and the "construction accounts" should be strictly observed.

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CHAPTER V.

The Policy in Regard to Freight Rates, and the Nationalization of the Railroads

We are in the habit of judging the economic policy of a railroad administration by a consideration of its rate system. Altho the passenger fares formerly played a more important role than freight rates, in recent times the latter have come to equal, and perhaps in the near future may exceed the former in importance. Accordingly we must first make a general survey of the development of the rate policy of the Japanese state railroads, and see how it has been influenced by the nationalization of the railroads.

I. GENERAL SURVEY

(*a*) *Explanation of Terms*

Generally speaking, the freight tariff or rate-system means a schedule of charges for transportation, while the freight bill is the amount charged for transporting a single consignment.[1] The specific charge for each individual service is called the freight rate. Before entering into any discussion of tariff, bills, rate-schedules, etc., we must consider, in a theoretical way, the matter of the freight rate. The rate, being the expression of a price, is subject to the general principle governing the fixing

[1] *Cf.* Ulrich: *Eisenbahntarifwesen*, p. 27.

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of all prices; that is, it is determined by the law of supply and demand, the latter being influenced by utility or subjective value i. e. value of service and the former by cost. The characteristic feature of rate-schedules is the difficulty of apportioning the net cost to the unit of service rendered, as is the case in most large enterprises having an enormous capital behind them.

The total expenditures of a railroad administration must be determined by the total net cost of its transportation service.[1] Consequently the net cost does not determine the charge for such services; on the contrary, the net cost, within a certain period and in a certain administration, determines the minimum rate. As Ulrich says, in fixing the unit charge for transportation the net cost of the service is of little importance.[2] Of course the *entrepreneur* can not disregard it, otherwise the enterprises would slowly go to ruin.

Now, to what extent is the price of goods transported increased by the freight rates?

The maximum demand for transportation is determined by the difference of prices in two places[3]; beyond that the transportation service should not be considered.

[1] Prof. Seligman is of the same opinion in regard to this point; he says: "If therefore anything is meant by cost, it must be joint cost. As we have seen, however, in our general discussion of value, joint cost refers only to the cost of all the services in the aggregate, and affords no criterion as to the principle governing the separate services." See Seligman, *Principles of Economics*, p. 582.

[2] *Cf.* Ulrich: *Eisenbahntarifwesen*, pp. 43 and 44.

[3] As to this point Prof. John M. Clark says: "The value of a transportation service is sometimes defined as the difference between the price of the commodity in question at the point of shipment and the price at the destination" (*Standard of Reasonableness in Local Freight Discriminations*, pp. 52–53). See also Sakolski, *American Railroad Economics*, p. 4.

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This general principle applies differently to state railroads and to private railroads. Private railroads can not afford to transport goods, for any length of time, for less than the net cost of such service; state railroads, on the other hand, are operated on an economic principle according to which the question of net cost plays a very unimportant role in the fixing of freight rates.

But, on the other hand, the monopolistic character of railroads, both private and state, sometimes causes the maximum difference of price in two places to be exceeded, in other words leading to the practice of charging what the traffic will bear,[1] thus gravely injuring the development of industry. This influence of freight rates upon industry is similar to that of interest on capital, the rate of which has a corresponding effect. It is therefore difficult, but urgently necessary, to construct a correct system or rate policy.

But just as the nationalization of railroads does not do away with their monopolistic character, so also it does not change the basis of their policy. The principal aim of private railroads is to earn as high dividends as possible, whereas state railroads have to be operated from the point of view of general economic interests, both private and public. Whether state railroads are operated more for private or for public ends, is determined by the the status of the nation's finances and by its general economic policy.

(*b*) *Relation of Rate Policy to Financial Policy*

The question whether it is wise to lower the rates with the idea of promoting industry and thus increasing the national receipts from the railways—an effect which rais-

[1] *Cf.* Seligman, *Principles of Economics*, p. 583.

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ing the rates would not have—can not be answered offhand. But the financial status of state railroads is not always so favorable that we may expect an increase of industrial prosperity to better the situation. In practice the controversy hinges on this very point.

(*c*) *Legislation.*

In February, 1872, shortly before the first railroad (Tokio-Yokohama) began to be operated, the first regulation regarding railroad transportation was published in an edict (No. 61) of the Prime Minister, Dajokwan Fukoku.[1] This regulation was revised in a second edict of Dajokwan (No. 146), which was published in May in the form of a Railroad Penal Ordinance. These two regulations remained in force for a long time. The operating regulations regarding the transportation of goods and the rates to be charged were published in September of the same year. In the year 1878 the regulations regarding the use of freight-cars, and in the years 1879 and 1883 the Railroad Penal Ordinances applicable to private railroads, were revised.

Since there were no private railroads in Japan until the year 1883,[2] there could be, in respect to most of the governmental regulations, no question of state control of rates, such as we find in the European countries. The regulations of the year 1872, insofar as they deal with the matter of rates, refer only to punishable acts in connection with the use of the railroads. Not until the year 1887 did the Imperial Decree regarding the building and operation of private railroads take effect, fixing the maximum passenger fares and requiring the

[1] *Cf.* "Meiji Kotsu Hattatsu Shi." pp. 106 and 107.

[2] *Cf.* chapter ii, 3.

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company to post rate-schedules in the stations.[1] The law of the year 1892 regarding the building of railroads merely specified the lines that were to be built. In the law of March 16, 1900, regarding private railroads, the matter of governmental control of rates was dealt with somewhat more explicitly than before. We read as follows:

§57. The company is obligated to submit its rate-schedule and every change thereof to the government for examination and approval. The government may compel the company, in the interest of the public welfare, to reduce its rates. In the publication of its rate-schedule the company shall make known the date of the approval.

§ 59. The company is obligated to lower its rates at the instance of the government, and to submit to the government for approval both the original rate and the proposed reduction; otherwise the government itself will specify the reduction.

§ 60. The government has the right to establish regulations regarding the computation of rates, the manner of publication, *etc.*

§ 61. The company is not allowed to raise its rates without the approval of the government.

[This law is still in force to-day. Regulations were for the first time established in this law regarding transportation by connecting lines and by through trains.]

§ 63. The government may direct a company to establish interchange of traffic relations with other companies and to introduce through freight service.

§ 64. If two or more companies can come to no agreement regarding a new arrangement, the management of through service, the division of rates, and the apportion-

[1] §29 of the Imperial Decree of 1887.

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ment of contingent expenses, the government, when appealed to, will adjust the matter. If a disagreement arises between a state and a private railroad on any one of the above points, the government will effect an adjustment.

Notwithstanding these regulations, it was very difficult for the railroad administrations to arrange for through transportation service.

According to Director Goba of the Sanyo Railroad,[1] it was particularly difficult to reach an agreement regarding the handling of freight. If, for example, a company sought to divert freight traffic to its line by reducing its rates, the branch lines would take advantage of the situation by refusing to coöperate, knowing that the freight would have to come to them anyway. Thus the development of through freight service was seriously interfered with. The causes of such phenomena are very deep-rooted, and it goes to show that Japanese commercial morality is still young and unsatisfactory, a fact which has also contributed not a little to impede the country's economic development in general. Subsequently, however, interchange of traffic began to be carried on with considerable success. But no such institution has been introduced into Japan as, for example, the clearing-house in England or the Interstate Commerce Commission in the United States of America.

The chief initial hindrance to the introduction of through freight service was the difficulty of uniformly distributing the various common expenses. This difficulty first arose, long before the nationalization of the railroads, between the state Tokaido Line and the private Sanyo Line; in this case each line had to pay the difference which fell to it after a mutual reckoning of expenses, calculated by car-miles on the other line. After a similar method had been tried with

[1] *Cf.* "Nihon Tetsudo Ron," pp. 202-3.

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more or less success by other lines, not a single case came up that would have made necessary the application of the regulation in § 64 of the law regarding private railroads.

In the Railroad Transportation Ordinance of the year 1900 regulations were established regarding the supervision of passenger fares. But as far as the freight traffic was concerned, the Ordinance merely fixed the maximum rate for the carrying of metal money (gold and silver), gold and silver bullion, government securities, stamps, notes, *etc.*, as follows:

Distance	*Value of the Articles*	*Sen*
under 25 miles	for every 100 Yen	10
25 — 50 "	" " " "	15
50 —100 "	" " " "	20
100—200 "	" " " "	25
over 200 " (for every additional 200 miles)	" " " "	5

Aside from this, no law has been passed up to the present time regarding the transportation of freight. Thus we see that legislation bearing upon the state railroads, in so far as it pertains to the transportation of freight, is far from satisfactory. At the same time we see that the state control of railroad administrations was not so imperatively necessary as it was, and still is, in England, for the reason that in Japan, owing to the natural formation of the country, fewer competitive lines can be built.

We shall now discuss in greater detail the rate policy of the state railroads.

2. HISTORICAL DEVELOPMENT OF THE RATE SYSTEM

The freight traffic of the Japanese state railroads is less important than the passenger traffic; but ever since the beginning of the railroad industry it has gradually increased until the two branches are to-day of almost equal importance.

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The relation of the freight traffic to the passenger traffic for the years 1897-1911 is indicated by the following figures: [1]

Year	*Receipts from Passenger Traffic*	*Receipts from Freight Traffic*
1897.....	7,472,343 Yen	2,114,540 Yen
1902.....	11,959,117 "	5,489,581 "
1906.....	20,720,870 "	13,944,931 "
1907.....	38,394,184 "	30,500,896 "
1911.....	52,339,348 "	46,329,795 "

In my opinion, the reason for the secondary importance of the freight traffic is to be found in the fact that freight, as was said earlier, could be transported cheaper by boat, owing to the long coast-formation of the country, to the lack of facilities for transferring freight from boats to trains, and to higher land rates.

The freight-rate system was modeled on the English pattern. It divides all freight into five classes, and the commodities in each class are handled in three ways: by the piece, by the car-load, and by express or fast freight. It is no cause for surprise that a rate-system based on the principle of weight and time, or weight and distance, was not introduced on the Japanese railroads,[2] since it was first necessary to get experience. The rate-system of the Japanese railroads, therefore, is necessarily accompanied by the idea of regulating the charge according to the value of the commodities transported and the amount of car space occupied; and in this connection it is to be noted that classification on the state railroads has been fixed according to the principle of profits without regard to social policy or protective considerations.

[1] According to "Meiji Shijuyonendo Tetsudoin Tokei Zuhio," p. 47

[2] Lotz, *Verkehrsentwicklung in Deutschland*, p. 47. At first general systems were proposed, whereby rates were computed per cwt. per hour, later per cwt. per mile.

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Of surprising interest is the fact that the so-called sliding-scale rates,[1] regulating the transportation of passengers, were not applied to the transportation of freight. It is to be regretted that in the system of rates various other rates—differential, special, and exceptional rates—exist in addition to the ordinary rates. This keeps alive the important queston of rate reform.

In January, 1901, a new system of rates was introduced on the state railroads, which, aside from a few revisions, remained in force until October, 1912, when the present normal rates came into force. But the difficulty of managing a rate system involving five classes of goods, and of handling freight in three ways, still exists. Since the newly-instituted tariff of January, 1901, constitutes the basis of the present normal rate-system, it must be mentioned here; and it is interesting to see to what extent it develops the regulations of the normal rates then in force, with a classification arranged according to value and to cost.

According to a published announcement (no. 37) of the Department of Communications of January 26, 1901, the tariff was formulated as follows:

		Terminal Charges
I. *Piece shipments*		
1. Handled according to weight in Kins (1 Kin = 0.6 kg);		
(1) Normal class (per 100 kins for every 1 mile)	0.2 Sen	2.0 Sen
(2) " " (")	0.3 "	2.0 "
(3) " " (")	0.4 "	2.0 "
(4) Valuable goods (")	0.6 "	2.0 "
2. Handled according to weight in tons:		
(1) Normal class (per ton for every 1 mile)	3.0 "	15.0 "
(2) " " (")	4.0 "	15.0 "
(3) " " (")	5.0 "	15.0 "
(4) Valuable goods (")	7.0 "	15.0 "
II. *Car-load shipments*		
1. Normal class (1)–(3) (per ton-mile)	2.5 "	10.0 "

[1] *Cf.* von Stieler, *Das deutsche Eisenbahnwesen der Gegenwart*, vol. i, p. 339. By sliding-scale rates we mean rates that decrease, per unit of distance, as the total distance increases.

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		Terminal Charges
2. Valuable goods (")	4.0 Sen	10.0 Sen
3. Specially classified freight:		
(1) Live stock:		
(a) Horses (1 or 2 head)* per car-mile	12.0 "	30.0 "
(b) Cattle (") " "	12.0 "	30.0 "
(c) Calves (")** " "	12.0 "	30.0 "
(d) Goats, hogs, asses (as above)		
(2) Dangerous goods:		
(a) By the piece (per 100 Kins per mile)***	0.7 "	2.0 "
(b) By the car-load (per ton per mile)	2.7 "	10.0 "
(3) Vehicles (per mile):		
(a) Bicycles (apiece)	1.5 "	2.0 "
(b) Rikshas	2.5 "	2.0 "
(c) Baby-carriages	1.5 "	2.0 "
(d) Carriages	15.0 "	50.0 "
(e) Express wagons	10.0 "	10.0 "
(f) Trucks	10.0 "	50.0 "
(g) Locomotives (with tender) (per ton)	2.5 "	10.0 "
(h) " (without tender) (")	1.5 "	10.0 "
(i) Automobiles	2.5 "	10.0 "
(j) Four-wheeled wagons (")	2.5 "	10.0 "
(k) Six-wheeled wagons (")	5.0 "	10.0 "
(4) Corpses:		
(a) Persons over 12 years (per corpse per mile)	15.0 "	50.0 "
(b) Persons under 12 years (" ")	7.5 "	25.0 "
(5) Very valuable goods transported according to special agreement.		
III. *Express or Fast Freight.*		
(1) Up to 100 miles (per 50 Kins)	40.0 "	
(2) More than 100 miles (per 50 Kins)	5.0 "	

*For each additional head, 3 Sen; Terminal charge, 5 Sen.
** " " " " 2 Sen; " " 5 Sen.
***Shipments weighing less than 500 Kins are reckoned as 500 Kins.

From the above tariff we see that in the rate-system of the Japanese railroads speed, value, weight, and method of handling all play a certain rôle in the fixing of the charge, and also that distance, except in the case of express, exerts no influence. Moreover, it is difficult to see according to what principle the various kinds of freight have been classified; the fact that the lowest rate was placed on stone,

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manure, minerals, grain, *etc.*, constituting the first normal class, seems to indicate that the classification was arranged according to the principle of value. The reason why raw silk, tobacco, vegetables, *etc.*, were assigned to the second normal class at a somewhat higher rate, and why furniture, porcelain, sugar, *etc.*, were entered as third-class merchandise at a still higher rate, was because of a distinction drawn between manufactured and semi-manufactured goods. It is impossible to understand, however, why silk-waste should be included in the class of valuable merchandise in which we find the products of fine hand-work. Generally speaking, however, the freight rates were apparently regulated according to the value of the merchandise transported.

A further discussion of the various classes of merchandise, despite many interesting details, cannot be entered into here, for the reason that it would lead us too far afield.

Let us now see in what way the nationalization of the railroads affected this rate-system. When the Japanese government took over the private railroads, the entire population hoped for the establishment of a uniform tariff for all commodities, and for the abolition of the inconsistent system that had been in use for so many years. As set forth above, in the classification of merchandise scarcely any other factor, save value, was taken into consideration.

It is to be noted as a great inequality that the rates of the Nihon Railroad in the northeastern part of the country, of the Sanyo Railroad in the central part, and of the Kiushiu Railroad in Kiushiu, were unceremoniously applied to the nationalized lines. It was, therefore, proposed to institute a rate commission, the members of which should represent all branches of trade and industry. This commission, however, has not yet been created.

It is also worthy of note that a reduction of rates was expected as a matter of commercial policy with respect to

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foreign countries, the idea being that the cost of producing the most important domestic goods should be decreased, in order that, as people still believe possible, the economic prosperity of the country might be promoted.

In connection with these ideas people hoped for the introduction of the zone or sliding-scale system, which, as stated above, did not yet exist in the freight traffic. But it was very difficult to regulate all these things immediately after the nationalization of the railroads and to satisfy the hopes of the people. Nevertheless the zone or sliding-scale system was applied to the Tokaido Railroad as early as September, 1906—that is, in the very year of the nationalization of the railroads.

We reproduce here (on the following page) the first zone or sliding-scale system: [1]

I. Freight by the piece (handled according to weight in Kins on the basis of 100 Kin-miles):

Distance	1. Normal Class	2. Normal Class	3. Normal Class	Valuable Freight
from 50 to 100 miles	0.16 Sen	0.24 Sen	0.32 Sen	0.48 Sen
" 101 " 150 "	0.15 "	0.22 "	0.30 "	0.44 "
" 151 " 200 "	0.14 "	0.20 "	0.28 "	0.40 "
" 201 " 250 "	0.13 "	0.18 "	0.26 "	0.36 "
" 251 " 300 "	0.12 "	0.17 "	0.24 "	0.34 "
" 301 " 350 "	0.11 "	0.16 "	0.22 "	0.32 "
" 351 " 400 "	0.10 "	0.15 "	0.20 "	0.30 "
" 401 " 450 "	0.09 "	0.14 "	0.19 "	0.28 "

For distances of over 450 miles, 2 Sen per 100 kin are charged for each additional 50 miles on merchandise of the first class, 3 Sen on merchandise of the second class, 4 Sen on merchandise of the third class, and 6 Sen on valuable merchandise.

II. Freight handled according to tonnage on the basis of 1 ton-mile:

[1] According to the published statement of the Department of Communications; no. 400, September 17, 1906.

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Distance	1. Normal Class	2. Normal Class	3. Normal Class	Valuable Freight
from 50 to 100 miles	2.4 Sen	3.2 Sen	4.0 Sen	5.6 Sen
" 101 " 150 "	2.2 "	3.0 "	3.7 "	5.2 "
" 151 " 200 "	2.0 "	2.8 "	3.4 "	4.8 "
" 201 " 250 "	1.8 "	2.6 "	3.1 "	4.4 "
" 251 " 300 "	1.7 "	2.4 "	2.9 "	4.1 "
" 301 " 350 "	1.6 "	2.2 "	2.7 "	3.8 "
" 351 " 400 "	1.5 "	2.0 "	2.5 "	3.5 "
" 401 " 450 "	1.4 "	1.8 "	2.3 "	3.2 "

For distances of over 450 miles, 30 Sen per ton are charged for each additional 50 miles on merchandise of the first class, 40 Sen on merchandise of the second class, 50 Sen on merchandise of the third class, and 70 Sen on valuable merchandise.

III. Freight by the car-load (handled only as first, second, or third-class merchandise) on the basis of 1 ton-mile:

Distance	Sen	Distance	Sen
from 50 to 100 miles	2.00	from 251 to 300 miles	1.20
" 101 " 150 "	1.80	" 301 " 350 "	1.10
" 151 " 200 "	1.60	" 351 " 400 "	1.00
" 201 " 250 "	1.40	" 401 " 500 "	0.95
		over 500 "	0.90

The preceding table clearly shows that the rate for short distances may often be higher than for long distances—which is held to be the disadvantage of the sliding-scale system. For that reason special provision was made for car-load shipments, whereby the short-distance rate, if it exceeds the long-distance rate, may be lowered. Why this regulation was not made to apply to freight handled by the piece, is not clear.

IV. For specially classified merchandise (such as live animals) there are three rates, according as such merchandise is transported more than 151 to 300 miles, from 301 to 500 miles, or more than 500 miles.

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This sliding-scale system was introduced, with a few modifications, on several private railroads, such as the Sanyo Line, the Bantan Line, *etc.*

The above-mentioned freight-rates and transportation-regulations of the railroads (prior to the governmental acquisition) were immediately applied to the nationalized private railroads, and all regulations regarding rates (*e. g.*, the exceptional rate) which the private railroads had established before the governmental acquisition, at first remained in force. Consequently, the freight-rate system of the state railroads was not uniform for a long time after the governmental acquisition. Finally, however, in October, 1912, a new system was introduced, which is the one in use to-day.

3. THE PRESENT SYSTEM OF FREIGHT RATES

The present normal tariff, which was revised in October, 1912, is peculiar, in that it combines the sliding-scale system with a system of small zones. It is for that reasson very comprehensive and complicated, since it enumerates everything separately. Consequently, only a part of it can be reproduced here:

Freight handled according to weight in kins (per 100 kins):

Miles	1. Normal Class	2. Normal Class	3. Normal Class	Valuable Freight
1– 5	0.027 Yen	0.029 Yen	0.033 Yen	0.041 Yen
6– 7	0.032 "	0.034 "	0.039 "	0.051 "
8– 9	0.036 "	0.039 "	0.046 "	0.061 "
10–11	0.040 "	0.044 "	0.052 "	0.071 "
12–13	0.044 "	0.049 "	0.059 "	0.081 "
14–15	0.048 "	0.054 "	0.065 "	0.090 "
1921–1950	1.160 "	1.510 "	2.080 "	3.550 "
1951–1980	1.170 "	1.530 "	2.110 "	3.600 "
1981–2010	1.190 "	1.550 "	2.140 "	3.650 "

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Freight handled according to tonnage (per ton):

Miles	1. Normal Class	2. Normal Class	3. Normal Class	Valuable Freight
1– 5	0.320 Yen	0.350 Yen	0.400 Yen	0.480 Yen
6– 7	0.381 "	0.423 "	0.493 "	0.605 "
8– 9	0.442 "	0.496 "	0.586 "	0.730 "
10–11	0.503 "	0.569 "	0.679 "	0.855 "
12–13	0.564 "	0.642 "	0.772 "	0.980 "
14–15	0.625 "	0.715 "	0.865 "	1.110 "
1921–1950	16.700 "	21.600 "	28.400 "	55.700 "
1951–1980	16.900 "	21.900 "	28.800 "	56.500 "
1981–2010	17.100 "	22.200 "	29.200 "	57.300 "

Freight handled according to the car-load (per ton):

Miles	1. Normal Class	2. Normal Class	3. Normal Class	Valuable Freight
1– 5	0.200 Yen	0.210 Yen	0.220 Yen	0.300 Yen
6– 7	0.247 "	0.261 "	0.275 "	0.387 "
8– 9	0.294 "	0.312 "	0.330 "	0.474 "
10–11	0.341 "	0.363 "	0.385 "	0.561 "
12–13	0.388 "	0.414 "	0.440 "	0.648 "
14–15	0.435 "	0.465 "	0.495 "	0.735 "
1921–1950	14.200 "	15.500 "	17.800 "	42.700 "
1951–1980	14.400 "	15.700 "	18.000 "	43.300 "
1981–2010	14.600 "	15.900 "	18.300 "	43.900 "

The above system has two interesting features: (1) The minimum rate applies to distances up to five miles. This is probably justifiable, for the reason that freight is generally transported further than five miles; if not, the net cost of the service is rendered relatively high on account of the terminal charges. (2) The particular charge is fixed specifically, not according to the general schedule, but according to distance, thus doing away with the above-mentioned disadvantage of the sliding-scale system.

The terminal charges, which constituted the bone of contention between the public and the railroad administration, are finally abolished. Regarding this matter, we shall have

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more to say further on. The rates for long-distance transportation underwent that rather large reduction which it was justly hoped would result from the nationalization of the railroads. As for classification, the new system pays no attention to it. Besides these normal rates, several so-called "differential rates" [1] were introduced with a higher or lower charge. The differentiation varies according to the lines, to the nature of the commodity, and to the speed. For example, along the line between Osaka and Shimonoseki, on the Uno Line, on the Kure Line, and on the Sanuki Line, a schedule of much lower rates is in force, the essential purpose of which is to prevent the transportation of merchandise by rail from being influenced by the competition of water transportation [a matter which has been hotly disputed since the time of the Sanyo Railroad]. Specially classified goods (such as live animals, inflammable materials, powder, dynamite, vehicles, corpses, *etc.*) are transported at reduced rates fixed by distance; this rate is also lower than the previous rate.

Express or fast freight is transported with an additional charge of 400 per cent for merchandise of the first normal class, and of 250 per cent for valuable goods. Transportation express or fast freight requires compliance with the following conditions:

(1) The distance must not be less than 50 miles.

(2) The shipment must weigh more than 200 Kins per piece, its volume must occupy more than 40 cubic feet of space, or its length must be more than 15 feet.

[1] By differential rates I mean, in the broader sense, the different rates resulting from the non-uniform rating of equal lots of the same merchandise over equal distances along the same railroad, including the sliding-scale. *Cf.* Lotz, *Verkehrsentwicklung in Deutschland*, pp. 51 and 52. Also, Philippovich, *Grundriss der politischen Oekonomie*, ii, pp. 55 and 57.

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(3) It is forbidden to transport by express or fast freight goods not found in the normal classes, with the exception of vehicles.

Merchandise transported by express or fast freight is conveyed directly to the address of the consignee, if the latter is not further than 1 ri [1] from the station, unless it is held at the station by order of the consignor.

In addition to these differential rates there are also several special or commodity rates, all different, which arose in various places before the nationalization of the railroads; for example, reduced rates for the transportation of coal on the Kiushiu Line, and of agricultural products on the Hokkaido Line.

These special rates, of course, apply uniformly to every shipper; but they can produce the same effect as exceptional rates, if they are used only for the benefit of certain shippers.

Exceptional rates, by which I mean such divergences from the normal and special rates as grant a temporary and exceptional reduction for certain goods on certain lines, are also very common.[2] It would be interesting to learn how the transportation of freight is divided between normal and exceptional rates; unfortunately, the published reports of the Railroad Office give us no information regarding the question.

In this connection it is to be noted that the Japanese state railroads do not have such a regulation as is found in Germany [3] and in most of the other European countries in which the government controls the railroads, forbidding rebates. Every director of the Japanese state railroads is al-

[1] One ri is about two miles.

[2] *Cf.* Lotz, *Verkehrsentwicklung in Deutschland*, p. 62.

[3] See § 63 of the Traffic Ordinance of the Prussian State Railroads.

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lowed to remit up to 50 per cent of the freight charges without the special permission of the General Administration. This discretionary right underwent no change after the railroads were nationalized. The fact that these secret rebates are not forbidden in the most recent rate-regulations can be explained only by the reflection that local customs in Japan are very deep-rooted.

The percentage of merchandise that is transported on the basis of the reduced rates brought about by these rebates is not ascertainable, but it certainly amounts to no less than 50 per cent of the total amount according to weight, and to at least 30 per cent of the total receipts from the freight service.[1]

The amount of the rebate is determined by the quantity of the merchandise which a shipper or group of shippers has submitted at a given rate for transportation within a certain length of time (month or year). It is clear that notwithstanding an occasional increase of business due to the rebates, the financial interests of the railroads are in general seriously injured.

According to what principles are such special and exceptional rates and rebates granted?

That the special rate for coal on the Kiushiu Line, for grain on the Hokkaido Line, for live animals on the Tohoku Line, and the exceptional rate for raw silk on the Chuo Line, have some regard to industrial and commercial policy, is easily comprehensible, although the reduced rate is never so low that the interests of the railroad seem to suffer.

4. CLASSIFICATION OF FREIGHT AND ITS CRITICISM

Since the present scheme of classifying merchandise has existed ever since the revision in February, 1901, it really

[1] This estimate was made by a Government Official in the Central Railroad Office at Tokio.

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ought to be revised again for the purpose of adapting it to present-day economic conditions. The task of classifying merchandise is not, to be sure, an easy one. The net cost of transportation is determined by the weight and size of the shipment; for that reason the weight or car-space system was first used by the railroads. But since it was seen that this system in many ways failed to take into consideration the value of the merchandise, there was introduced, as will be remembered, a value system based largely on the principle of net profits. The value, weight, and size of a shipment of goods, as based on rate-schedules, are such very dissimilar standards that it is scarcely possible to apply them all to certain classes without infringing the principle of justice. In the case of state railroads, moreover, it is necessary to take into consideration the general economic point of view, as well as the principle of profits. In the European countries and in the United States, merchandise intended for transportation is divided into four, eight, or twelve classes, whereas in Japan there are but five classes.

A single glance at the rate system of the Japanese state railroads shows how complicated and haphazard it is; for example, the same wood is handled in two classes, and the same stone in four classes.

It would be desirable to subject the scheme of classification to a more careful investigation, but we must here content ourselves with a short criticism. According to the present system, uncut stone (excepting marble), coal, fertilizer, salt, *etc.* (most of which are heavy raw materials of little value), are placed in the first normal class, to which the lowest rate applies. This part of the system must be approved in every respect. Raw textile materials (excepting raw silk), cut stone (excepting marble), tobacco, *etc.*, are placed in the second normal class, to which a somewhat higher rate applies, since these commodities are lighter and

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more valuable than those in Class 1. In the third normal class are placed cut stone (marble, crystal, *etc.*), furniture, *etc.*, and in the valuable class are placed raw silk, flowers, and art products.

The question whether this classification really favors the interests of the railroads, as well as of the public at large, does not admit of a simple answer. The following objection has been raised to the present classification:[1] together with the silk-worm, which is classed as valuable merchandise, are placed the offal and skins of the silk-worm (excepting the perfect silk-worm); on the other hand, the product of the worm, the cocoon, is placed in the third class. The silk textiles of the province of Ashikaga, the earthen pot and the mackerel of the province of Sendai, and the cinnamon of the province of Wakayama are often handled differently by different freight agents; consequently an extra charge is not infrequently made at the receiving station, in fixing which car-loads of all merchandise belonging to the first, second or third normal classes are handled alike. This seriously violates the principle of uniformity with respect to weight. For example, a car-load of coal, having a value of less than 100 yen, is handled in the same way as a car-load of sugar, having a value of more than 2,000 yen. The various special rate-schedules mentioned above were expected to do away with such inconsistencies, but they proved ineffective. In a car-load of mixed merchandise, moreover, goods of very different classes (*e. g.*, stone, lime, *etc.*) are charged for at the rate of valuable freight.

It is impossible to see why this scheme of classification, although there has been ample opportunity to revise it, has not been changed since 1901. It was expected that the

[1] *Cf.* "Tokio Keizai Zassi," no. 1605, July 29, 1911, pp. 14 and 15.

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nationalization of the railroads would bring it about that commodities would be carefully classified, not only according to the principle of profits, but also according to the principle of general economic purposes. Consequently, people are now calling for a reformed tariff, which shall combine the present second and third normal classes, and shall place the necessaries of life, such as miso, soja-sauce, sugar, and milk, which are now included in the second and third normal classes, in the first normal class.

It is proposed to divide all merchandise into three classes, and to use the following scheme as the basis of the classification: Since the important commodities transported by the Japanese railroads are petroleum, raw silk, grain, salt, fire-wood, fertilizer, fish, paper, cotton, yarn, matches, porcelain, *etc.*, it would suffice to divide them into the following three classes: First class—normal class; second class—raw materials; third class—inflammable materials.

But there is no objection to placing goods that now belong to the first, second, and third normal classes simply in a so-called "common" class. In my opinion, merchandise should be classified more distinctly than in the present system (raw materials, semi-manufactured articles, and manufactured articles) from industrial and commercial points of view—a proposition which would naturally demand a more thorough investigation.

5. ABOLITION OF THE TERMINAL CHARGES

The terminal charges constitute, in a broader sense, a part of the rate, and, what is more, an unchanging part that is independent of the distance-rate. Thus, theoretically, we are not justified in discussing this fixed part of the rate together with the varying part.

The system of terminal charges was introduced on the Japanese railroads in February, 1901, simultaneously with

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the publication of the revised system of rates, regarding the fundamental features of which the government set forth the following: The system of terminal charges was to help defray the expense of improving the station arrangements, and the loading and unloading of freight.[1] But it was very doubtful whether the government, as it declared, really intended to use the money for the above-mentioned expenses or merely to increase its revenues. Objections were raised to the terminal charges in consideration of the fact that the Hokuetsu Line was at that time deriving an enormous extra income from them; whereas the Sanyo Line, on account of sharp competition with water transportation, did not have this extraordinary source of income. In our opinion, this constitutes an argument against the terminal charges. In reply to such objections, the government issued the following declaration at the session of the Economic Investigating Commission ("Seisan Chosa Kwai"),[2] held in 1910: The terminal charges are levied to defray the expenses arising from the storing of merchandise at the stations of shipment and arrival. But this declaration of the government did not suffice, for the reason that merchandise, according to the present transportation ordinances, is not accepted unless it is shipped immediately after receipt. In reply to the further explanations of the government to the effect that the terminal charges were to make up the deficit caused by short-distance traffic, the question was asked why they were levied for long-distance traffic.

It is to be regretted that there was in the government at that time no expert who could clearly explain the peculiarities of the terminal charges.

It is distinctly noticeable, however, that the terminal charges have burdened the short-distance traffic more than

[1] *Cf.* "Tokio Keizai Zassi," no. 1606, August 5, 1910, pp. 15-17.

[2] *Ibid.*, p. 16.

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the long-distance traffic. For merchandise to be transported a short distance (five miles), the minimum charge applies in all cases, no matter whether or not it fills an entire car. And this minimum charge proves itself in the following way to be very high: In short-distance traffic the standard rate per ton-mile is 2.5 Sen; thus for a car of seven tons, 17.5 Sen; for five miles, then, 87.5 Sen. The freight-rate of 0.9 Sen per ton-mile for long-distance transportation (over 500 miles), on the other hand, is 6.3 Sen ($.9 \times 7 = 6.3$) for a car of seven tons. Thus if short-distance transportation is charged for at the rate of long-distance transportation, a shipment of freight can be transported about three times as far by long-distance as by short-distance rates. If the terminal charges of 1.40 Yen are included in the rate in the short-distance traffic, the total amount reaches the height of 2.275 Yen (1.400 plus 0.875).

While the abolition of the terminal charges might diminish the revenues of the state, that is not to be considered in view of their present harmful effect upon economic development. Dislike of terminal charges had become more and more acute, until the government was finally obliged to yield; so they were abolished at the same time that the rate-tariff was reformed.

In our opinion, however, the terminal charges, if used for the purpose mentioned by the government, are not unjustifiable. But the matter assumes a quite different aspect if one regards their abolition in the light of what they signify under existing conditions. In modern railroad industry the idea of "equalization" or "consolidation" prevails, which, in our opinion, means that the rate-schedule is determined, not on the basis of the separate net costs, but according to the "equalized" net costs in a certain administration and within a certain period; for example, the modern zone-rate also rests on the same idea, and this idea,

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furthermore, is given a wider scope when the railroad policy is guided by considerations of general welfare. The abolition of the terminal charges adapts itself to this idea; nevertheless, there is no question but that the rates have been raised to an extent corresponding more or less to the old terminal charges.

For what reason, now, were the terminal charges abolished? The government explanation is as follows: [1]

1. In order to make the freight-rates as clear and self-explanatory as possible to the public.
2. In order to reduce the freight-rates.
3. In order to do away with the intricate and laborious computation involved.

The rate system has now undergone a reduction which for merchandise of the first normal class, for example, amounts to 0.3 Sen per Kin per 5 miles.

It is also worthy of note that the system of terminal charges made it necessary to have a mediator between the shipper and the railroad administration, because the computation of the rate, together with other detailed regulations, made it difficult for the shipper to confer directly with the railroad administration. The railroad administraton wished to deal as far as possible directly with the shipper, and it hoped to reach this goal by doing away with the terminal charges. The consequences of their abolition cannot yet be clearly seen, for the reason that too short a time has elapsed, and that its effect is mixed up with that of lowering the rates. A few effects appear to have resulted, however, that are beneficial to the entire industry of the country, as well as to the interests of the railroads in particular.

[1] *Cf.* The report of the Chamber of Commerce at Yokohama of October, 1912. The statements therein were made by the Director of the Operating Division of the Central Railroad Office at Tokio.

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6. THE RATE POLICY SINCE THE NATIONALIZATION OF THE RAILROADS

The rate policy of the state railroads may be based on principles either of private or of public economy. Whether the former or the latter is the case in Japan, will appear from the classification of the merchandise in the normal and special rate-schedules. We shall discuss here only the latter, since the former have already been dealt with above.

(α) *The Local Sliding-Scale System After the Nationalization of the Railroads*

The sliding-scale system, graduated differently according to the various districts, was revised shortly after the nationalization of the railroads,[1] and it is so complicated that it is possible to give only a brief explanation of it here. It divided the entire country into four chief zones or districts —the northeast, central, west (Sanyo), and south (Kiushiu). In each chief zone the rates change every fifty miles for freight that is transported more than fifty miles (in Kiushiu, strangely, they change every one mile), and in each higher grade there is a reduction of the rate. This rate is highest in the northeast, somewhat lower in the central district, and lowest of all in the west. In this connection we must take into consideration the following facts: In the northeast the general industrial development is still very backward, and the amount of traffic is correspondingly small. Moreover, in the first place, the efficiency of the railroads is impaired by numerous gradients, and, in the second place, the influence of water transportation scarcely makes itself felt. In the central district, in which are situated the capital and several large cities, the entire economic situation, as compared with the northeast district, is much more favorable. In the western district the competition

[1] *Cf.* "Tokio Keizai Zassi," no. 1605, July 29, 1910, p. 16.

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with water transportation exerts a very decided influence. The southern district, finally, is situated in every way just like the central district.

The above explanations make it clear that the rate policy of the state railroads is always guided by the private-economic principle of profits. If in any respect it took into consideration the public principle, how could the highest rate find application in the northeast district, which had first to be opened up by the railroads, and how could the lowest rate find application in the western district, where water transportation cannot be neglected for reasons of general commercial policy?

The consequences of this rate system with respect to the public welfare were very dissimilar. While, for example, the producer in the northeast needs 3 Yen in order to transport a shipment of freight a distance of 150 miles, the producer in the western district (Sanyo) for the same amount can transport the shipment a distance of more than 300 miles. In car-load lots the same goods are transported in the western district 300 miles, as compared with only 166 miles in the northeast.[1] In the present normal rate system this inconsistency has been somewhat lessened, but in the Sanyo district, conditions are still very much the same as they were before the new rate system came into force.

(*b*) *What is the Attitude of the State Railroads toward the Competition of Water Transportation and of the Private Railroads?*

Of the Japanese railroads the Sanyo Line is the one most affected by water transportation. From the time when this line began to be operated down to the present day, it has fought this kind of competition. The Tokaido Line be-

[1] *Cf.* "Tokio Keizai Zassi," no. 1605, July 29, 1910, p. 16.

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tween Yokohama and Kobe also worked against it. The rates of the Sanyo Line are the lowest in the country; the minimum rate for freight that is transported a distance of over 300 miles is 1 Sen per ton; on the Tokaido Line it is 1.1 Sen per ton, and on the Tohoku Line it is 1.2 Sen per ton. In this connection we must not overlook the fact that on the Tairei Line (a branch of the Sanyo Line extending from Asa to Tairei in the province of Yamaguchi) and on the Bantan Line (a branch of the Sanyo Line extending from Himeji to Satsu), no reduction of rates was effected, for the reason, it is suggested, that there is no competition there with water transportation.

It is a generally observed fact, however, that on lines where there is from end to end competition with other lines or with water traffic, for short distances between the termini the freight rates are always made higher in order to compensate the loss along the entire line brought about by the reduced rates put in force to meet competition. Nor is that to be avoided in Japan. For example, the freight rates from Tokio to the provinces of Totomi and Mikawa are higher than those to Yokkaichi, although the latter is further away from Tokio than the former; and from Tokio to Fukushima the rates are higher than from Tokio to Sendai. This shows that the state railroads are fighting the competition of water transportation.

The question now arises: Why are the state railroads carrying on just as vigorous a campaign against the competition of water transportation as are the private railroads? The rate reduction effected for competitive reasons, in my opinion, should not exceed the limit determined by the actual cost of transportation (the exact computation of which is, to be sure, scarcely possible). As to this point, Pratt contends that there would scarcely be a case in which state railways will dare to abandon their revenue in the face

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of sea competition.[1] The actual circumstances of the Japanese State Railway policy seem to justify this argument.

The policy adopted by the state railroads, which would desire to conserve economic interests, should not have the effect of developing an excessive competition with water transportation, but should simply prevent the rates of water transportation from being so unduly high as to be considered monopolistic.

Let us now see how keen the competition is between the state and private railroads. This is best shown by a few examples: The Tobu Line, in consequence of competition with the state railroad, has been obliged to effect frequent reductions of its rates. The Yokohama Line (extending from East Kanagawa, a station in Yokohama, to Hachioji) was obliged to allow itself to be taken over by the government, for the reason that it could no longer compete with the state railroad.[2] The Keihin Line (electric), extending from Tokio to Yokohama, in consequence of a project of the government to build a three-track line between Tokio and Yokohama, is facing ruin. The Hanshin Line (electric), extending from Osaka to Kobe, is confronted with the same danger. The government has recently considered building a line to run parallel with the present Keisei Line (electric) between Tokio and Narita. On the other hand, numerous petitions for the building of local electric lines, which seem to involve a possible danger to the national railroads, have all been rejected; for example, the Sorachi, Tokaido, Keihanshin (Kioto-Osaka-Kobe) Lines. Furthermore, the government has approved the building of the Hankai Line parallel to the Nankai Line, which has very good prospects among the private lines in the western part of the country.

[1] *Cf.* E. A. Pratt, *The Case against Railway Nationalization*, pp. 234-5.

[2] Strange to say, the competitive line of the government is 42 miles long, extending from East Kanagawa through Shinagawa and Shinjiku to Hachioji, whereas the Yokohama Line is only 26 miles long.

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It is to be seen from the foregoing that the government, ever since it took over the railroads, has regulated the rate policy, in conjunction with the general railroad policy, in accordance with the private-economic principle of profits, in order to achieve thereby, as set forth above, the true object of the nationalization.

Why is the rate policy of the Japanese state railroads constructed largely on the private-economic basis?

The reasons are that the government, on the one hand, is afraid of being reproached for conducting an unprofitable administration, and, on the other hand, it is afraid that, on account of the system of separate or independent accounting, as explained above, it will have to bother itself with securing as much money as possible, out of the net income of the railroad department, for the construction and betterment of railroads.[1] But we cannot leave out of consideration the question as to what progressive influence the nationalization of the railroads has had upon the country's industrial development—a matter which we shall discuss in the final chapter.

[1] *Cf.* chapter iv.

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CHAPTER VI

The Policy in Regard to Passenger Fares, and the Nationalization of the Railroads

I. GENERAL SURVEY OF THE PASSENGER FARE SYSTEM

While it has been generally observed in the earliest stage of the development of railroads in every country that the receipts from passenger traffic have exceeded those from freight, this was true in regard to Japan for a very long time before the equilibrium of to-day was established. Even on the railroads of Italy and Switzerland the transportation of freight was stimulated by the development of industry and commerce.[1] As far ahead as we can now see, however, the freight traffic of the Japanese railroads is not susceptible of much increase, for the reason that mineral products, which represent the most important part of the freight traffic on the railroads of the world, are rare in that country; and for the further reason that most of the important lines run along the coast,—a fact which is the chief cause of the sharp competition between land and water transportation.

The first schedule of passenger fares, which was constructed on the English pattern, was based in Japan, as

[1] *Cf. Archiv für Eisenbahnwesen*, 1913, p. 1582; 1911, p. 1532.

	Passenger Receipts	Freight Receipts
Italy (1910)	190,114,474 (Lira)	291,130,717 (Lira)
Switzerland (1911)....	101,798,118 (Francs)	125,475,929 (Francs)

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in Germany,[1] on the so-called distance-system, and was developed as follows:[2]

In May, 1872, the fare for the distance between Shinagawa and Yokohama was:

I Class.....	1.50 Yen	(per mile.....	10.0 Sen)
II Class.....	1.00 Yen	(per mile.....	6.0 Sen)
III Class.....	0.50 Yen	(per mile.....	3.3 Sen)

In June, 1874, the fare between Shinbashi and Yokohama was:

I Class.....	1.00 Yen	(per mile.....	5.55 Sen)
II Class.....	0.60 Yen	(per mile.....	3.33 Sen)
III Class.....	0.30 Yen	(per mile.....	1.66 Sen)

Not until March 16, 1899, was the sliding-scale or zone system introduced. The rates according to this system, which was constructed on the Belgian pattern, were:

Distance	III Class	II Class	I Class
1– 50 miles.....	1.65 Sen	2.8875 Sen	4.95 Sen
51–100 "	1.40 "	2.4500 "	4.20 "
101–200 "	1.10 "	1.9250 "	3.30 "
201–300 "	0.90 "	1.5750 "	2.70 "
over 300 "	0.80 "	1.4000 "	2.40 "

Although nominal, as well as material, changes have been effected in the rate-system since that time, the three-class system has not yet undergone any change, notwithstanding the fact that its justification was disputed by several scholars four or five years before the nationalization of the railroads. Regarding this matter we shall have more to say below.

The nationalization of the railroads exerted scarcely any perceptible influence upon the passenger fare sys-

[1] *Cf.* Lotz. *Verkehrsentwicklung in Deutschland*, p. 68.

[2] *Cf.* Seki, "*Tetsudo Kogi Yorio*," pp. 375-377.

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tem; for the latter is always more or less influenced by public opinion, since the interests of the public at large are more directly and obviously affected by passenger fares than by freight rates. The extent to which considerations of social policy have influenced passenger fares since the nationalization of the railroads, is made fairly plain by a study of the various differential systems.

2. NORMAL FARE-SYSTEM OF THE STATE RAILROADS FOR THE TRANSPORTATION OF PASSENGERS WITH FREE BAGGAGE

On October 16, 1907, after the nationalization of the railroads, a zone system (which is still in force) was introduced on the Japanese railroads by a published announcement (No. 646) of the Department of Communications. The rates are classified and reduced according to distance as follows:

	Distance	Per Mile
III Class.....	1– 50 miles	1.65 Sen
	51–100 "	1.30 "
	101–200 "	1.00 "
	201–300 "	0.80 "
	over 300 "	0.70 "
II Class.....	150 per cent of the III Class rate.	
I Class.....	250 per cent of the III Class rate.	

An extra fee, moreover, is charged on certain fast trains:

I Class, under 400 miles.....	3 Yen	over 400 miles	5 Yen
II Class, under 400 miles.....	2 Yen	over 400 miles	3 Yen

But the extra charge for fast trains was limited (a) to the I and II classes, and (b) to certain stretches along which the traffic is heavy, namely, from the Shinbashi

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Station (Tokio) to Shimonoseki, from Kioto to Nagoya, from the Ueno Station (Tokio) through Fukushima to Hirama, and from Hakodate through Sapporo to Asahikawa.

The above rates and extra charges apply only to persons over twelve years of age; children between the ages of four and twelve ride for half fare, while children under four years of age are carried free. The amount of free baggage allowed varies as follows:

I Class	up to 100 Kins per person
II Class	up to 60 Kins per person
III Class	up to 30 Kins per person

Children are allowed one-half as much free baggage as adults.

The sleeping-car rates vary according to the line and to the class; for example:

(a) The Tokaido-Sanyo Line:	
I Class	3 and 4 Yen
II Class	2.5 Yen for one Section
	30 Sen for an upper berth
	3.5 Yen for two Sections
	60 Sen for a lower berth
(b) The Tohoku Line	(only I Class) 3 Yen
The O-U Line	
The Tokiwa Line	
The Hakodate-Kushiro Line ..	
The Kagoshima-Nagasaki Line	

These normal rates, in comparison to the fares in force prior to the nationalization of the railroads, are somewhat lower. But if we compare them with those in force on the larger German railroads in the year 1907 [I Class, 7.0; II Class, 4.5; III Class, 3.0; IV Class, 2.0 pfennigs per kilometer (which would make the IV Class

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rate in Japan about 1.33 Sen per mile)], we find that the fares in Japan are still very high.

3. DIFFERENTIAL RATE-SYSTEMS

The expression "differential rate-systems" might have various connotations; here, however, we are to understand by it simply a system of generally reduced rates, not an exceptional system. Let us now see on what principles the various differential rate-systems are based.

(a) Commutation tickets are sold to persons who travel back and forth between two points every day. There are three kinds of commutation tickets—one kind good for three months, another for six months, and another for one year. The amount of the reduction from the normal rate varies between 40 and 80 per cent., depending upon the distance and the class. The reasons for the introduction of these tickets are doubtful, for it is not certain that they are profitable to the railroad administration.

(b) Season tickets are sold to persons who travel occasionally, but not regularly, on a certain line; they are similar to commutation tickets with a zone rate. A book contains twenty-five tickets and is good for ninety days. The reduction from the normal rate varies between 20 and 30 per cent. The tickets may be used by all the members of a family.

(c) Club tickets favor the interests of both the railroad administration and the public, for the reason that they not only reduce the fare of each passenger, but also increase the percentage of occupied seats. These tickets are sold only to clubs, the reduction in rate varying between 20 and 40 per cent. according to the number of passengers and the distance traveled; but the number of passengers must not be less than twenty-five, and all of

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them must ride in the same class and on the same train for a distance of not less than 20 miles. School children, provided there are more than twenty-five of them who travel a total distance of more than 10 miles, and factory workers (male and female) traveling for pleasure in groups of more than fifty, are allowed even more favorable rates.

Since experience has proved these club tickets to be a very good institution, the railroad administration established in March, 1913, a new arrangement, whereby it seems to have hoped to further the country's social-economic interests, and at the same time to increase the percentage of occupied seats and cars. It made no difference, according to the previous regulations, at what time of the year these club tickets were used. The result was that in January, owing to an excessive demand, there were not always sufficient cars available, whereas in February and June, when the number of travelers usually decreased, the normal rates had to be reduced in order to fill the cars, which would otherwise remain empty. In the new arrangement the railroads sought to utilize this condition of affairs; clubs were classified in three groups, and rate-schedules were formulated with reference to the time of the year when club tickets were used. The classification was as follows:

(1) General clubs, 3 rate schedules.

(2) School clubs, 2 rate schedules.

(3) Workingmen's clubs, 1 rate schedule, valid the year round.

In each case the previous minimum rate was reduced even more. We reproduce below the various rate schedules:

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1. FOR GENERAL CLUBS

First Period: From March 2 to May 10.

Distance (miles)	25–100 persons	100–200 persons	200–300 persons	300–400 persons	Over 400 persons
			Percentage of the Reduction		
20– 50	10.0	12.5	15.0	17.5	20.0
50–100	12.5	15.0	17.5	20.0	22.5
100–200	15.0	17.5	20.0	22.5	25.0
200–300	17.5	20.0	22.5	25.0	27.5
over 300	20.0	22.5	25.0	27.5	30.0

Second Period: From January 1 to January 10; from March 1 to March 20; from May 11 to May 31; from July 1 to end of December.

20– 50	20.0	23.0	26.0	29.0	32.0
50–100	22.5	25.0	28.5	31.5	34.5
100–200	25.0	31.0	31.0	34.0	37.0
200–300	27.5	33.5	33.5	36.5	39.5
over 300	30.0	36.0	36.0	39.0	42.0

Third Period: From January 11 to February 28; from June 1 to June 30.

20– 50	25.0	26.5	32.0	36.0	40.0
50–100	27.5	31.0	36.5	38.5	42.5
100–200	30.0	33.5	37.0	41.0	45.0
200–300	32.5	36.0	39.5	42.5	47.5
over 300	35.0	38.5	42.0	46.0	50.0

2. FOR SCHOOL CLUBS

First Period: From March 21 to May 10.

Distance (miles)	25–100 persons	100–200 persons	200–300 persons	300–400 persons	400–500 persons	Over 500 persons
			Percentage of Reductions			
10– 50	15.0	19.0	23.0	27.0	31.0	35.0
50–100	17.5	21.5	25.5	29.5	33.5	37.5
100–200	20.0	24.0	28.0	32.0	36.0	40.0
over 200	22.5	26.5	30.5	34.5	38.5	42.5

Second Period: From January 1 to March 30; from May 31 to December 31.

10– 50	30.0	34.0	38.0	42.0	46.0	50.0
50–100	32.5	36.5	40.5	44.5	48.5	52.5
100–200	35.0	39.0	43.0	47.0	51.0	55.0
over 200	37.5	41.5	45.5	49.5	53.5	57.5

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3. FOR WORKINGMEN'S CLUBS

Distance (miles)	50–100 persons	100–300 persons	300–600 persons	600–1000 persons	Over 1000 persons
10–50	42.5	47.5	52.5	57.5	62.5
over 50.....	45.0	50.0	55.0	60.0	65.0

When this new tariff was published the question was discussed whether it would exert any influence upon the passenger traffic. Experience has shown, as a matter of fact, that club-trips are often affected by the new rate-policy; that is, clubs sometimes postpone contemplated trips from the spring to the autumn in order to profit by the lower rates, thus making the use of the cars uniform throughout the year.[1]

The fact that the railroad administration has allowed workingmen's clubs greatly reduced rates, irrespective of the time of the year, is very gratifying, inasmuch as the country's social and industrial interests are thereby furthered.

(d) Special trains are operated upon request, provided the amount of the fare is not less than 66 yen. The rates are:

up to 50 miles.....	3.30 Yen per mile
50–100 miles	2.60 Yen per mile
100–200 miles	2.00 Yen per mile
over 300 miles.....	1.40 Yen per mile

If the arrival and departure of special trains occur in the night, an additional charge of 30 per cent. is made.

(e) The exclusive use of a train is regulated as follows:

1. For the exclusive use of fast trains and special

[1] *Cf. Die Erläuterung über die Neuordnung*, by S. Kinoshita, Director of the Operating Division of the Central Railroad Office at Tokio. (The quarterly paper "Chikiu" of April 15, 1913, No. 4, pp. 122–126.)

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trains the regular charge for all seats is made.

2. For exclusive use of ordinary trains two-thirds of all the seats must be paid for; but if the number of passengers exceeds two-thirds of the total number of seats, all the seats in the train must be paid for.

(f) Return-trip tickets. The reason for reducing the price of return-trip tickets is probably the same as the reason for introducing a sliding-scale system. According to Lotz,[1] furthermore, return-trip tickets are sold with the idea of inducing passengers to go and come on the same line; but this reason, since the consolidation of many lines under the national administration, has lost force. The one important reason for reducing the price of return-trip tickets, therefore, is identical with the reason for introducing a sliding-scale system, namely, to encourage long-distance trips. The reason why the German railroads, when their rates were reformed in 1907, did away with the institution of return-trip tickets,[2] is to be found in the fact that they are not justified from the standpoint of rate-policy, and also that the present rate-system is in many respects opposed to simplification.

The Kiushiu Line was the first of the Japanese railroads to introduce return-trip tickets (December, 1899),[3] and, moreover, with a lengthened period of validity corresponding to the distance to be traveled. The amount of the reduction varies between 10 and 30 per cent. The parts of a line on which return-trip tickets are good are generally those on which the traffic is heavy. We

[1] *Cf.* Lotz, *Verkehrsentwicklung in Deutschland*, p. 75.

[2] *Cf. das deutsche Eisenbahnwesen der Gegenwart*, i, p. 346.

[3] Published statement of the Kiushiu Railroad Company, No. 33a, December 5, 1899.

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can easily see from this that the idea of the return-trip ticket was not to prevent people from returning on competitive lines. In June, 1901, return-trip tickets were introduced on the Tokaido State Line.[1]

(g) Round-trip tickets, which in Japan are distinguished from tickets for a direct journey forward and back over the same line, were for the first time introduced on the Tokaido State Line on June 23, 1907. They were sold only in the summer-time, and were good only on those parts of a line connecting certain ocean-bathing resorts. According to Lotz,[2] round-trip tickets mainly encourage long trips, but in Japan we wish to encourage pleasure trips of all kinds.

According to the report (1911) on the Japanese State Railroads,[3] the receipts from the various kinds of tickets and extra charges were as follows:

Total receipts	50,674,290	Yen
Received from ordinary tickets	46,800,290	"
commutation tickets	545,282	"
season tickets	476,148	"
round-trip tickets	1,678,622	"
train de luxe tickets	36,571	"
fast-train tickets	856,751	"
sleeping-car tickets	205,736	"
platform tickets	883,381	"

The total receipts from tickets sold at the various differential rates, namely, commutation-tickets, season-tickets, round-trip tickets, train de luxe tickets, amount to 2,626,813 yen. This represents about 5 per cent. of the total receipts from the passenger traffic. The pas-

[1] Published statement of the National Railroad Office, No. 1062, June, 1901.

[2] *Cf.* Lotz, *Verkehrsentwicklung in Deutschland*, p. 76.

[3] *Tetsudo in Tokei Zuhio*, pp. 72–75.

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senger receipts, excepting those from fast trains, tend to increase. Unfortunately the above-mentioned report does not give the receipts from return-trip tickets and club tickets.

4. ADVANTAGES AND DISADVANTAGES OF THE SLIDING-SCALE SYSTEM

In Japan the system of sliding-scale fares was no doubt justified according to the principle that he who buys much is to be favored more than he who buys little. But the theoretical justifications of the system are numerous, and the following arguments are given:

(a) The argument of smaller net costs; that is, the so-called constant part of the cost of transportation is the same in the case of a man who travels 500 miles as in the case of a man who travels but 100 miles. Hence the former does not need to pay five times as much as the latter pays. It is easy to see that the expenses for amortization and payment of interest on the capital invested in a railroad, as well as for the maintenance of that railroad, are alike necessary, no matter how far the train travels or how often it goes back and forth between two points. Consequently such expenses must be distributed equally over all trips. But if this is right, it is not right to defray the above-mentioned expenses exclusively out of the receipts from the trips; for most of them have to be borne anyway, no matter whether the train runs or not. Nowadays the theory prevails that the net cost does not determine railroad rates, but that railroad rates determine the net costs.[1] If it may be correctly said that the total expenses of a railroad administration should be defrayed from its total receipts, *then*

[1] *Cf.* Ulrich, *Eisenbahntarifwesen*, pp. 43, 44.

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the question of net cost is not a question of production but of distribution. If an equal distribution of the expenses (variable as well as constant) is effected with respect to all trips, then it is fair to effect that distribution in precise proportion to the distance each train travels.

(b) The revenue argument; that is, it is a commercial principle of all railroads to encourage long trips, in order to make the earnings as large as possible. But whether it is really possible to secure greater earnings by adjusting rates, is a difficult question to answer. To the man who follows this argument it is hard to furnish a statistical proof that the earnings of the sliding-scale system are greater than those of the distance or mileage system.

Railroad experts have demonstrated that an increase of earnings can be secured from reductions in rates only under the following conditions:[1] 1. If reducing the rates can stimulate traffic, which in sparsely populated countries, as in agricultural states, does not usually follow; 2. if the reduction remains within the relative maximum of intensity—that is, if the traffic can thereby be still more increased. In short, the sliding-scale system exerts but little influence on the passenger traffic, except in the case of round-trips and other pleasure trips, which are frequently taken in consequence of a reduced rate. For the so-called *voyages de luxe*, too, various differential rates have been established, the consequence of which was that the sliding-scale system was applied either not at all or to a very limited extent. It is therefore to be regarded as very fortunate that the German railroads do not have a sliding-scale system, ex-

[1] *Cf.* Ulrich, *Eisenbahntarifwesen*, pp. 43 and 44.

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cept for a few differential rates. Their rate-system was introduced in order to counteract the tendency to the concentration of population and industries, but without success. It is strange that the railways in the United States have no distance-rate system, which would seem to be rather important in such a vast country as the United States in order to render the communication between far-distant cities easy.[1]

In my opinion only old tradition is responsible for the fact that the sliding-scale system was applied to the passenger traffic in Japan manifestly without special discussion, as well as for the fact that it is still in force to-day.

5. REGARDING THE THREE CLASS SYSTEM

It has already been shown that the number of seats occupied in a train decreases with the number of classes. Which class-system is to be preferred, must be determined by the conditions of the country and its population. On most of the state railroads of Germany there are four classes, in Siberia there are six, in England there are two, while in the United States the class-system is not formally recognized.[2]

The various systems seem to be devised either with regard to the interests of the railroads, or else with regard to general economic interests. It would accordingly be interesting to investigate whether the I and II

[1] *Cf.* Raper, *Railway Transportation*, p. 239.

[2] Von der Leyden says justly: "The common assertion that the American railroads have but one class is to-day no longer quite correct. As a matter of fact there are on most trains a I and II Class, and on many a III Class as well." (Von der Leyden, *Die nordamerikanischen Eisenbahnen in ihrer wirtschaftlichen und politischen Beziehung*, p. 231.) According to the statement of Johnson (*American Railway Transportation*, pp. 143-4), most companies sell second-class tickets.

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Classes really favor the financial interests of a railroad administration. In the year 1903 this question was taken up and discussed with animation by Japanese scholars and experts.

(a) *An argument against the class-system.* In the newspaper "Tokio Asahi"[1] it was contended that the abolition of the class-system was desirable, not only for the railroad administration, but also for the public; since the cost of maintaining the I and II Classes is relatively higher, it was claimed that their abolition would be profitable for the railroad administration, which would then be able to provide better cars—just as is true in the case of the street cars in every country and in the case of the railroads in the United States.

Apropos of this, Director Kudo of the Central Railroad office published the following statistical investigation;[2] the average distance traveled by one passenger on the Tokaido Line in each of the three classes was:

	1902	1903
I Class.....	45.76 miles	47.35 miles
II Class.....	33.55 miles	38.70 miles
III Class.....	23.06 miles	24.46 miles

The average number of passengers carried daily in a car of the Tokaido Line in the year 1902 was 3.4 in the I Class, 7.2 in the II Class, and 21.0 in the III Class. The average receipts from a car per mile in one day in the same year were 13.9 in the I Class, 17.3 Sen in the II Class, and 28.5 Sen in the III Class. The average cost of building an eight-wheeled car amounts to 3349 Yen for the I Class, 2238 Yen for the II Class, and 1626 Yen for the III Class. There are also several

[1] "Tokio Asahi" of June, 1905. In "Nihon Tetsudo Ron," p. 330.

[2] *Cf.* "Nihon Tetsudo Ron," pp. 336, 347 and 354.

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other factors (the larger amount of free baggage allowed, the running of express trains, etc.), which make the use of cars of the I and II Classes much more expensive. It is evident from what has been said that the cost of installing and operating cars of the I and II Classes is very high in relation to their relative earnings, and consequently that the use of such cars is not profitable.

(b) Professor Seki, on the other hand, maintains that the abolition of the class-system on the Tokaido Line would mean a loss to the railroad administration for the following reasons:[1] He assumes 1, that the number of trips would be the same before and after the abolition of the class-system; and 2, that the number of train-miles would not thereby be diminished. Then, on the basis of these assumptions, he compares the receipts and expenses of the III Class with those of the I and II Classes in the following manner:

A. The annual loss caused by the abolition of the I and II Classes would amount (in round numbers) to:

I Class.....	216,000 Yen	= (10,819,000[2] × 2 Sen[3])
II Class.....	714,000 Yen	= (71,484,000[2] × 1 Sen[3])
Total.....	930,000 Yen	

B. The annual decrease of expenses brought about by the abolition of the I and II Classes would amount to 50,000 Yen, computed as follows:

[1] *Cf.* "Nihon Tetsudo Ron," pp. 345–547 and 360–363. The material used was taken from a report of the Railroad Office for 1902.

[2] Average number of miles traveled per year by passengers in this Class.

[3] Difference of estimated average rate per mile in this Class from that of III Class.

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The building expenses of 266.5[1] cars of the I and II Classes amount to (in round numbers)	683,000 Yen
The building expenses of 226.5[1] cars of the III Class amount to (in round numbers)	433,000 Yen
Difference.....	250,000 Yen

Thus 50,000 Yen (that is, 20 per cent. of 250,000 Yen) is required for the amortization and payment of interest on the difference. The sum of 880,000 Yen (A–B) thus represents the loss which the abolition of the I and II Classes would cause the Tokaido Line in one year.

(c) Criticism. Even the friends of the class-system have observed that the statistical bases for the demonstration are not sufficient, and that the question of the fast trains and of the larger amount of free baggage allowed passengers in the I and II Classes must naturally be separated from that of the class-system. For in those questions we are not concerned with a theoretical investigation, but only with the policy in regard to the present arrangement, according to which the higher classes bear the greater burden. One is not at all justified, moreover, in using the average receipts from a car per mile as a basis for a comparison with the car-costs. Nor is it right for Professor Seki to use only the difference between the diminished receipts and expenses as a basis for making a comparison. It is hard to understand why he does not take into account the number of occupied seats and the general operating costs. Let us suppose, for example, that the number of seats in a car of the III Class is 36, and the number of seats in a car of the I Class is 12, and that the percentage of occupied seats in the III Class is 66.6 (that is, 26) and the percentage of those occupied in the I Class is 33.3 (that is,

[1] Number of cars of the I and II Classes available at that time.

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4). Assuming that the cars of the I and III Classes are run in the same train and the operating costs (excluding the general cost of construction) are 20 Sen for 2 cars (10 Sen per car), we may compile the following table:

Case 1: I and III Classes.

Receipts from I Class.....	12 Sen	= (3 Sen[1] × 4 persons)
Expenses for I Class.....	10 Sen	(operating costs)
Gain.....	2 Sen	
Receipts for III Class.....	26 Sen	= (1 Sen[1] × 26 persons)
Expenses for III Class	10 Sen	(operating costs)
Gain.....	16 Sen	
Total gain.....	18 Sen	= (2 Sen + 16 Sen)

Case 2: III Class.

Receipts	30 Sen	= (1 Sen[2] × 30[3] persons)
Expenses.....	10 Sen	(operating costs)
Gain	20 Sen	

Thus in Case 1 the gain is 2 Sen less than in Case 2.

We see from the above scheme how profitable the abolition of the I Class would be. In reality the difference in the gains would be greater than 2 Sen, for we have taken an advantageous example for the I Class in order to refute Professor Seki's argument. If we deduct the cost of maintenance and the other costs resulting from the use of cars of the I Class from the total expenses, we see that the class-system is disadvantageous. In short, Professor Seki overlooked the fact that the number of car-miles may decrease, while the number of train-miles remains the same. If we take a train of only III Class cars and a train of cars of all classes, we see that in the

[1] Average rate in this class per passenger per mile.

[2] Average rate in this class per person per mile.

[3] Total number of persons in the I and III Classes in Case 1 (4 + 26).

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former a smaller number of cars would suffice to handle an equally heavy traffic. Regarded from the standpoint of the percentage of occupied seats as compared with the total number of seats available, the III Class, as set forth above, is the most profitable, since 76 cars of the III Class can accommodate as many passengers as 266.5 cars of the I and II Classes.[1]

Accordingly, if we wish to decide whether the use of cars of the I and II Classes is worth while, we must first be sure whether the operation of these cars is profitable in and of itself; if not, then it would be advisable to abolish the I and II Classes; if so, the amount of profit should be compared with that of the III Class. In making this comparison two points must be borne in mind, the expenses and the receipts. The amount of the former can be determined objectively, whereas the amount of the latter is dependent upon the rates. And these constitute the main factor of the problem.

It is to be regretted that, in dealing with this problem, both the friends and the opponents of the class-system seem to have left out of consideration the question of fares. If the present fares were to be changed, the final verdict would be different. Theoretically, it should be first decided whether the fares should be raised or lowered in order to increase the receipts. If the people who ride in the I and II Classes are better able to pay, the fares can be raised; if the amount of traffic, in turn, is in no way increased by lowering the fares, then the reduction can only result in smaller receipts.

Now comes the question. On what basis does the present rate-system of the I Class (2.5 times the rate of the III Class) rest?[2] It appears to us as if the cost of

[1] *Cf.* Kudo's discussion in *Nihon Tetsudo Ron*, p. 370.

[2] *Cf.* page 125 of this discussion.

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constructing the cars had been regarded as the determining factor; for the ratio of building a car of the I Class, as compared with a car of the III Class, is 3349 : 1626.[1] But it is not sufficient to use this as a basis. For if we use the number of seats as a basis, then the rate in the I Class should be at least three times as high as the rate in the III Class (12 : 36); if the percentage of occupied seats be used as a basis, then the rate in the I Class should be eight times as high as the rate in the III Class.

Let us now see how the number of passengers, the receipts, and the number of seats compare with one another in the three classes. According to the operating statistics of the state railroads for 1911 the relations were as follows: [The figures for the total number of passengers and the total receipts represent thousands; the percentage estimates are approximate.]

	Passengers		Receipts		Seats		Average receipts per seat
	Total	per cent	Total	per cent	Total	per cent	(Yen)
I Class...	444	0.3	1,016	2.0	9,364	3.9	108
II Class...	7,068	4.7	6,323	13.5	32,382	13.7	192
III Class...	143,565	95.0	39,527	84.5	194,527	82.4	202

A computation of the average number of miles traveled per person in the three classes gives us the following figures: 71.6 in the I Class; 47.3 in the II Class; 21.0 in the III Class. The one advantage of the I Class is, that the average number of miles traveled per person is here the greatest.

If we desire to investigate more carefully whether or not the class-system favors the interests of the railroad,

[1] *Cf.* page 136 of this discussion.

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there are two starting-points from which to work: 1. To investigate the present system statistically, and 2. To investigate the true character of the class-system with reference to rate reforms.

As to 1, the class-system in Japan has many advantages and disadvantages, as may be seen from the above figures. On the whole, however, it may be concluded that it is disadvantageous.

As to 2, the disadvantages of the class-system are by no means absolute; they can be bettered by rate changes (higher or lower, according to the amount of traffic) and by the equipment of cars (increasing the number of seats, etc.).

But before taking up the important matter of reforming the present rate-system, with the object of making the I and II Classes more profitable, the Presidents of the State Railroad Directorates, in the session of the year 1913, decided to eliminate Classes I and II from the local service of the railroads.[1]

6. REFORMATION OF THE PASSENGER FARE SYSTEM

Even at the present time there seems to be no disposition to reduce the fares in force on the state railroads of Japan. This shows that the matter of net cost exerts but little influence upon the rates, and that the railroad administrations, in countries where the railroads are in the hands of the government, are not always in a position to satisfy the wishes of the public, although public opinion occasionally brings about a reduction of rates. An effort is being made, however, to harmonize the general social interests and the interests of the railroads, in so far as rate reduction has the effect of increasing the amount of traffic and the receipts.

[1] According to the newspaper "Tokio Asahi" of August 15, 1913.

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We must not overlook the fact that the various differential rates, as mentioned above, are to some extent fixed with reference to the social welfare, or that the stations, cars and other appurtenances are now somewhat better equipped than formerly, which must be regarded as a favorable effect of the nationalization of the railroads.

But generally speaking, the government operation of the railroads, as far as the passenger traffic is concerned, is not as advantageous as it was expected to be.

In regard to the reformation of the class-system, it has been proposed to introduce a fourth class, which exists in most of the German states and certainly conforms to the tendency to harmonize social policy and railroad policy. That the lower classes, especially the IV Class, are compatible with the financial interests of the railroads, is shown by the statistics of the German railroads. The total receipts from the passenger traffic on the German state railroads in the year 1908 were divided among the four classes as follows:[1]

I Class	23,117,661 marks	3.22 per cent
II Class	129,214,601 "	18.03 "
III Class	292,853,588 "	40.85 "
IV Class	258,456,252 "	36.06 "

Thus the IV Class stands next in importance to the III Class as far as the financial interests of the railroads are concerned. If we use as a basis the percentage of occupied seats, it must certainly lead them all. Says Lotz:[2] "In the year 1896 the percentage of occupied seats in the cars on the Prussian railroads was distributed as follows: I Class, 10.4; II Class, 20.6; III Class, 24.0; IV Class, 36.0; average of all classes, 26.5."

[1] *Cf. Das deutsche Eisenbahnwesen der Gegenwart*, i, p. 351.

[2] Lotz, *Verkehrsentwicklung in Deutschland*, p. 70.

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Accordingly the introduction of a fourth class on the Japanese railroads might benefit the public at large, as well as the railroads themselves.

It is also proposed, on the other hand, to make the number of classes as small as possible, since a large number of classes has the effect of increasing the number of unoccupied seats. Our proposal is to unite the present I and II Classes into one class. Anybody who has traveled in Japan knows that I and II Classes differ, not in respect to equipment and finish, but only in respect to the number of seats per car. For that reason the abolition of the I Class would not, in my opinion, be very unpleasant for people who are in the habit of riding in that class. Regarded from a financial standpoint, the advantage of the abolition must be obvious.

In this connection we must consider the question as to how the rates should be standardized. If the rates for the IV Class were made one-half as high as the rates for the III Class, as they are on the Prussian-Hessian Railroad, then a person could ride in the IV Class for 0.825 Sen per mile.[1] This rate would represent about 50 per cent of the III Class rate in Prussia. If for this reason it seemed necessary to reform the present normal tariff system, then it might be best to raise, say, 20 or 30 per cent, the present rates for the II and III Classes. The newly-proposed system, therefore, might be called a three-class system with the I Class eliminated.

The following are the principal reasons why the abolition of the present sliding-scale system is desired:

(a) The theory of net cost, as set forth above, exerts little or no influence upon the fixing of the rate.

[1] As already stated, the present rate in the III Class for a distance of less than 50 miles is 1.65 Sen per mile.

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(b) It is very questionable whether the sliding-scale system increases the passenger traffic, or at least whether it yields greater revenue.

(c) The computation of the transportation charges is intricate and laborious.

An increased use of commutation tickets, which were first introduced on the Japanese railroads in the form of season tickets, is very desirable. The abolition of return-trip tickets is to be favored for the reasons mentioned above. In Germany the abolition of extra charges for fast trains was demanded by many people in 1907, when the reformed rates were put into force on the state railroads; but for various reasons the demand was not granted.[1] The present regulations regarding extra charges for fast trains on the Japanese railroads, in our opinion, must be either abolished or extended to the III Class. Furthermore, it is necessary to introduce weekly workingmen's tickets, sick-cars, etc. We can not enter into greater detail regarding these matters here.

[1] *Cf. Das deutsche Eisenbahnwesen der Gegenwart*, ii, p. 343.

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CHAPTER VII

Final Observations and Proposals for Reform

I. FINAL OBSERVATIONS

It is evident from all that has been said that the nationalization of the Japanese railroads has not had the favorable effect generally expected, either upon the national finances or upon the industrial development of the country. The chief reason why the governmental acquisition of the private railroads had a very different effect in Prussia than in Japan is to be found, we think, in the latter's peculiar geographic formation. We saw, indeed, that there was no compelling economic reason for the nationalization of the railroads. The question now comes up, was it a mistake for an insular country like Japan to adopt the system of government management?

What justifies the system of state railroad administration? The answer depends upon the question whether the state railroads are operated from the standpoint of private or of public interests. If the state railroads are operated on a private basis, this question, in turn, brings up another—is it better to defray the operating expenses out of the money derived from taxation or out of the receipts of the railroads themselves? Only if state railroads are operated on a public basis is the system of governmental control justified, for, as Weichs-Glohn [1]

[1] *Cf.* Weichs-Glohn, *Die modernen Verkehrsmittel*, pp. 19–20.

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says, the modern means of communication can be judged properly, in their essential character, only if studied from the standpoint of the general social interests. If, now, a railroad can not be operated by the government on the public basis, it would be better to let it remain in private hands in such a country as Japan; for private operation is more profitable than state operation. But the question whether or not a state railroad can be operated on a public basis, is not a theoretical, but a practical question. The status of the national finances of Japan is not so favorable that the state railroads could be operated on a basis of public economy.

One reason, it is maintained, why the system of state management is to be preferred, is that the government is apt to pay more attention to the interests of the railroad employees. Another reason is that the government keeps increasing the railroad mileage. Do these reasons apply to Japan?

Let us first consider how the situation of the railroad employees was affected by the nationalization of the railroads.

In the year 1907 a life, health and accident insurance society was founded for the benefit of railroad employees, especially day-laborers, who were obliged to join it. In the latter part of March, 1912, the number of members in the society was 90,717, that is, about 87.7 per cent of the total number of employees. The length of the working-day for laborers was also, generally speaking, shortened. Furthermore, the establishment of a railroad museum and of a railroad hospital for railroad employees and their families has contributed to their mental and physical welfare. These institutions were a great success after the nationalization of the railroads, and they

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proved to be very useful. Let it be added that the number of people killed and injured in railroad accidents decreased from 436 in the year 1906 to 337 in the year 1912.[1]

But it is a question whether or not the conditions of life of the railroad employees, generally speaking, have improved since the nationalization of the railroads. The following figures give some information regarding this matter:

End of March	No. of Employees	Total Wages (Yen)	Wages per capita (Yen)
1907	88,266	1,468,801	16.64
1912	102,418	1,938,607	18.75

The above table indicates that the nominal income of the employees has increased somewhat. But if we compare this increase with the surprising increase in the cost of living, it is of little importance; as far as the day-laborers are concerned, the increase is even smaller, indeed, almost nothing—16.64 Yen in 1907 to 16.80 Yen in 1912. Although it is true that the length of the working-day decreased somewhat after the nationalization of the railroads, the amount of the decrease was nothing remarkable.

What has been done in the way of increasing the mileage of the railroads?

The following table indicates the mileage of the railroads before and after the nationalization:

Fiscal Year	Private Railroads	Year of Operation	State Railroads
1895.....	1,687 miles	1908–09	4,512 miles
1905.....	3,276 miles	1911–12	4,950 miles
Annual increase,	165 miles	Annual increase,	146 miles

[1] According to *Meiji Shijunendo Tetsudo Kyoku Nenpo*, p. 244, and *Meiji Shijuyonendo Tetsudoin Tokei Zuhio*, p. 382.

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We see from the above figures that the annual increase of mileage is much less since the nationalization of the railroads than it was when they were operated privately. This fact seems to have been overlooked.

This leads us to the conclusion that there is no compelling reason why the system of governmental management should be maintained, despite the urgent necessity of extending all means of communication in the interest of the development of industry.

Generally speaking, at the present stage of Japan's industrial development the problem of production should receive more attention than the problem of distribution. One must not overlook the fact, however, that the system of private railroads has many industrial disadvantages, which must be remedied by appropriate measures.[1]

How, now, is the previous policy of the railroads to be changed?

2. PROPOSALS FOR REFORM

As a means of reforming the Japanese railroad system we venture to make the following proposals:

(a) To grant charters to private railroads and at the same time retain the existing state railroads. This means, to be sure, a change in the railroad policy. But in our opinion it is absolutely necessary to allow the state railroads to continue to exist as such; for leasing or selling them invariably has a detrimental effect upon the public interests, as well as upon the national finances.

If we regard this proposed mixed system more closely, we see, on the one hand, that it does away with the disadvantages of the private system (e. g., the building of competitive lines, the acquisition of great power on the

[1] But it is certain that an excessive competition, such as we find among the private railroads in other countries, will not arise in Japan.

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part of the railroad companies, etc.), and, on the other hand, it satisfies the military requirements, if any, of state railroads. And if we glance at the future consequences to be expected from this new arrangement, we shall immediately see that the national treasury will derive an annual revenue of 15-20 million Yen from the state railroad administration, instead of having to concern itself with raising money for the building and improvement of railroads, as it is now doing to an extent of about 30 million Yen annually.

The question whether state or private management is to be preferred is at the present time unanswered, from the practical as well as the theoretical standpoint. Although the monopolistic character of railroads is an argument in favor of state management, we must not leave out of consideration the fact that the capital invested in railroads is subject to private law.

But one more question comes up—whether private railroads can be operated profitably with no help whatsoever from the government. It certainly would not be too late to adopt helpful measures immediately after the completion, if possible, of profitable lines. But it should be borne in mind that the system of state management has the advantage that deficits resulting from the building of unprofitable lines can be made up by the surplus earnings of other profitable lines.[1] The expenses of unprofitable lines must be defrayed out of the money derived from taxation, or in some similar way, no matter whether they are built by the state or by private companies with the help of the state. With this proposal is to be united, of course, the demand that branch lines shall be built with all possible dispatch.

[1] *Cf.* Lotz, *Verkehrsentwicklung in Deutschland*, pp. 36 and 37.

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(b) To accept provincial loans and retain the existing state railroads. Since the nationalization of the railroads the money needed for building and betterment purposes, as stated above, has for the most part been taken from the Deposits Division of the Ministry of Finances. This seems to indicate that there is abundant money in the provinces for the building and improvement of railroads.

It is better to procure money for the railroads by means of loans than to have recourse to the public deposits, for the reason that the present Deposits Division of the Ministry of Finances is to be held largely responsible for all the confusion in the national finances. Consequently domestic borrowing is to be preferred to foreign borrowing.

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APPENDIX TABLE I

ACCORDING TO "MEIJI SHIJUNENDO TETSUDO KYOKU NENPO" APPENDIX PP. 44, 46 AND 102–103

THE FINANCIAL RESULTS OF PRIVATE RAILWAYS

Working Year	Average mileage open to traffic	Capital invested yen	Operating revenues yen	Operating expenses yen	Operating income yen	Operating ratio in %	Operating Income		State subvention yen
							In % of capital	Per mile yen	
1883....	48.13	905,510	306,051	116,484	189,567	38.1	20.9	3,936	52,777
1884....	71.53	2,061,724	431,609	166,954	264,655	38.7	12.8	3,693	132,588
1885....	127.64	3,106,253	566,867	249,982	316,886	44.1	10.2	2,480	182,274
1886....	156.73	5,493,323	821,088	334,187	486,901	40.7	8.8	3,103	249,059
1887....	238.15	6,702,924	1,182,345	392,542	789,803	33.2	11.7	3,316	229,788
1888....	337.74	11,833,565	1,765,568	638,981	1,126,587	36.2	8.5	3,334	310,604
1889....	467.02	20,365,740	2,453,007	1,025,804	1,427,203	41.8	6.0	3,056	647,628
1890....	716.69	33,815,795	3,181,337	1,551,114	1,630,223	48.8	4.8	2,274	1,147,305
1891....	1,060.52	44,061,623	4,320,046	2,197,883	2,122,163	50.9	4.8	2,000	1,016,856
1892....	1,248.48	47,508,303	5,096,634	2,437,138	2,659,496	47.8	5.5	2,130	954,724
1893....	1,338.41	52,049,889	5,981,057	2,512,149	3,468,908	42.0	6.6	2,592	887,174
1894....	1,457.19	57,860,939	7,803,008	3,155,459	4,647,549	40.4	8.0	3,189	779,005
1895....	1,617.04	68,668,412	10,333,935	4,065,975	6,267,960	39.3	9.0	3,876	735,637
1896....	1,698.15	77,130,331	12,373,775	5,237,426	7,136,349	42.3	9.2	4,207	706,594
1897....	2,026.77	114,063,115	16,800,057	7,554,495	9,222,010	45.1	8.0	4,549	856,977
1898....	2,465.77	152,342,140	20,556,934	11,396,514	9,134,420	55.4	6.3	3,704	707,133
1899....	2,725.26	173,444,231	24,500,266	12,236,540	12,263,726	50.0	7.0	4,500	525,213
1900....	2,840.53	191,230,391	29,014,009	13,622,156	15,391,853	47.0	7.0	5,418	360,271
1901....	2,943.62	202,804,045	31,640,328	15,093,086	16,547,242	47.7	8.1	5,621	306,197
1902....	2,977.71	213,231,933	33,344,213	16,203,223	17,140,990	48.6	8.0	5,756	523,913
1903....	3,070.05	226,611,643	35,472,210	16,374,601	19,097,609	46.2	7.9	6,210	793,936
1904....	3,204.48	241,004,905	37,538,711	17,175,241	20,363,470	45.8	8.4	6,374	611,736
1905....	3,276.30	251,640,590	44,977,025	21,026,020	23,951,005	46.8	9.4	7,364	46,109
1906....	2,932.63	147,140,989	43,192,598	22,025,996	21,166,602	51.1	14.3	7,277	—
1907....	936.29	27,382,849	11,819,182	6,186,169	5,633,013	52.3	20.6	6,069	—

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TABLE II

(ACCORDING TO "MEIJI SHIJUNENDO TETSUDO KYOKU NENPO" PP. 20–21, 76–77 AND 101–102
"MEIJI SHIJUYANENDO TETSUDOIN TOKEI ZUHIO" PP. 427–436.)

THE FISCAL RESULTS OF STATE RAILROADS

Fiscal year	Average mileage open to traffic	Capital invested yen	Operating revenues yen	Operating expenses yen	Operating income yen	Operating ratio in %	Operating income	
							In % of invested capital	Income per mile
1872	16,22	—	174,930	113,464	61,466	64.9	—	3,775
1873	18,00	—	441,615	233,830	208,785	52.7	—	11,599
1874	31,08	—	592,671	346,803	245,868	58.5	—	7,906
1875	38,27	—	644,459	403,823	240,636	62.7	—	6,276
1876	62,61	—	1,284,466	434,001	850,465	33.8	—	13,551
1877	65,11	—	910,336	526,248	384,088	57.8	—	5,896
1878	65,11	—	1,011,739	555,117	456,622	54.9	—	7,010
1879	72,17	—	1,243,531	512,674	730,857	41.2	—	10,121
1880	76,27	—	1,555,797	608,224	947,573	39.1	—	12,413
1881	83,72	—	1,713,980	677,586	1,036,394	39.5	—	12,353
1882	102,69	—	1,840,394	926,548	913,846	50.3	—	8,884
1883	116,11	—	1,564,910	631,132	933,778	40.3	—	8,040
1884	125,51	—	1,362,686	612,148	750,538	44.9	—	5,974
1885	139,32	14,887,085	1,194,815	589,628	605,187	49.3	4.0	4,341
1886	194,77	17,279,951	1,301,119	622,995	678,124	47.9	3.2	3,478
1887	235,52	22,447,622	1,698,873	677,124	1,021,749	39.9	3.8	4,336
1888	335,27	29,797,433	2,313,811	967,585	1,346,226	41.8	4.0	4,015
1889	534,50	31,618,348	3,771,630	1,663,417	2,108,213	44.1	6.1	3,944
1890	550,49	32,760,841	4,213,804	2,001,273	2,212,531	47.5	6.3	4,018
1891	550,49	34,241,504	4,110,141	2,426,900	1,683,241	59.0	4.5	3,057
1892	550,49	35,418,997	4,580,632	2,166,199	2,414,433	47.3	6.4	4,385
1893	557,49	36,103,252	5,384,455	1,942,375	3,442,080	36.1	8.7	6,173

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TABLE II *Continued*

(ACCORDING TO "MEIJI SHIJUNENDO TETSUDO KYOKU NENPO" PP. 20–21, 76–77 AND 101–102
"MEIJI SHIJUYANENDO TETSUDOIN TOKEI ZUHIO" PP. 427–436.)

THE FISCAL RESULTS OF STATE RAILROADS

Fiscal year	Average mileage open to traffic	Capital invested yen	Operating revenues yen	Operating expenses yen	Operating income yen	Operating ratio in %	Operating income	
							In % of invested capital	Income per mile
1894	564,26	37,650,657	5,819,413	2,181,696	3,637,717	37.5	8.5	6,435
1895	586,27	39,279,435	8,004,233	2,951,561	5,052,672	36.9	11.0	8,617
1896	611,17	43,653,043	8,273,652	3,815,663	4,457,989	46.1	8.6	7,294
1897	647,53	46,317,417	9,727,490	4,786,049	4,941,441	49.2	7.3	7,630
1898	724,02	60,050,614	11,165,889	6,380,951	4,784,938	57.1	7.8	6,608
1899	816,68	69,970,049	13,804,375	6,706,112	7,098,263	48.6	10.1	8,689
1900	895,50	85,573,511	16,045,775	7,271,565	8,774,210	45.3	10.2	9,796
1901	1,019,66	100,590,209	16,776,519	8,547,226	8,229,293	50.9	8.1	8,070
1902	1,131,17	125,714,859	18,336,582	9,066,165	9,270,417	49.4	7.3	8,195
1903	1,282,06	139,366,330	20,109,115	9,896,901	10,212,214	49.2	7.4	7,965
1904	1,382,16	152,103,298	21,406,137	9,463,971	11,942,166	44.2	7.0	8,640
1905	1,470,22	159,918,445	24,056,140	11,129,154	12,926,986	46.3	7.1	8,793
1906	2,149,60	168,286,895	35,478,317	18,247,601	17,230,716	51.4	10.2	8,015
1907	3,980,47	361,897,919	69,775,161	35,751,943	34,023,218	51.2	9.4	8,547
1908	4,512,80	753,886,988	79,821,583	42,859,637	36,961,946	54.0	4.9	8,190
1909	4,580,20	784,863,769	82,236,436	42,060,989	40,175,547	51.0	5.1	8,771
1910[1]	4,767,30[2]	823,196,507	89,336,592	43,249,372	46,087,220	48.0	5.5	9,665
1901	4,950,30[2]	872,229,998	100,179,818	45,768,256	54,411,562	46.0	6.2	10,991

[1] The figures of this table refer only to the R. R. of Japan proper. The figures differ a little from those of the early report of the State R. R. Bureau owing to the difference in the accounting basis.

[2] Since 1910 the 26 miles of the Yokohama private R. R. managed by the government are included.

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TABLE III

(ACCORDING TO THE TETSUDO KOKUYU SHIMATSU IPPAN, APPENDIX PP. 58–65)

PURCHASE PRICE AND ACCOUNTING BASIS FOR NATIONALIZATION OF RAILROADS

Name of companies	Date of nationalization	Mileage open to traffic on the day of nationalization	Costs for construction up to the day of nationalization yen	Operating income in per cent of capital invested %	Purchase price yen	Costs for construction after the day of nationalization which were not agreed upon by the Government; round yen	By the agreement of Government increased to round yen	Fixed purchase price, round yen
Hokkaido	1906 10.1							
Tanko		207	12,152,354	12.3939306	30,366,135	10,461	11,550	[1] 30,488,657
Kobu	1906 11.11	27	4,895,013	14.5186701	14,213,803	51,374	56,724	14,270,527
Nihon.....	1906 11.11	860	55,057,845	12.4967668	[1] 37,609,011	55,110	61,466	137,670,477
Ganetsu	1906 11.11	49	2,729,243	—	2,521,498	—	—	2,521,498
Sanyo.....	1906 11.11	414	38,128,695	10.2973818	78,525,147	146,387	163,855	78,689,002
Nishinari	1906 12.11	4	1,751,238	—	1,704,509	—	—	1,704,509
Kiushiu	1907 7.11	446	56,323,731	10.0979318	113,751,106	2,320,867	2,593,728	116,344,834
Hokkaido	1907 7.11	158	11,365,391	—	11,365,391	—	—	11,365,391
Kioto.....	1907 8.11	22	3,457,794	—	3,340,468	—	—	3,340,468
Hankaku.....	1907 11.11	70	6,932,817	—	6,927,850	—	—	6,927,850
Hokuetsu	1907 11.11	85	7,307,031	5.3013839	7,747,475	—	—	7,747,475
Sobu	1907 9.11	73	6,153,763	10.4435349	12,853,409	15,618	17,745	12,871,154
Boso.....	1907 9.11	29	2,215,543	—	2,135,000	—	—	2,135,000
Nanao	1907 11.11	34	1,532,488	—	1,490,000	—	—	1,490,000
Tokushima	1907 11.11	21	1,331,748	—	1,310,000	—	—	1,310,000
Kwansai	1907 10.11	280	24,789,882	7.2635863	36,012,690	102,687	117,183	36,129,873
Sanyo	1907 10.11	26	2,772,299	9.9144393	5,497,159	36,824	38,355	5,535,514
Total		2,823	238,896,884		467,370,657	2,739,331	3,060,606	[1] 470,542,235

[1] 110,972 yen of which is the price of land purchased.

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